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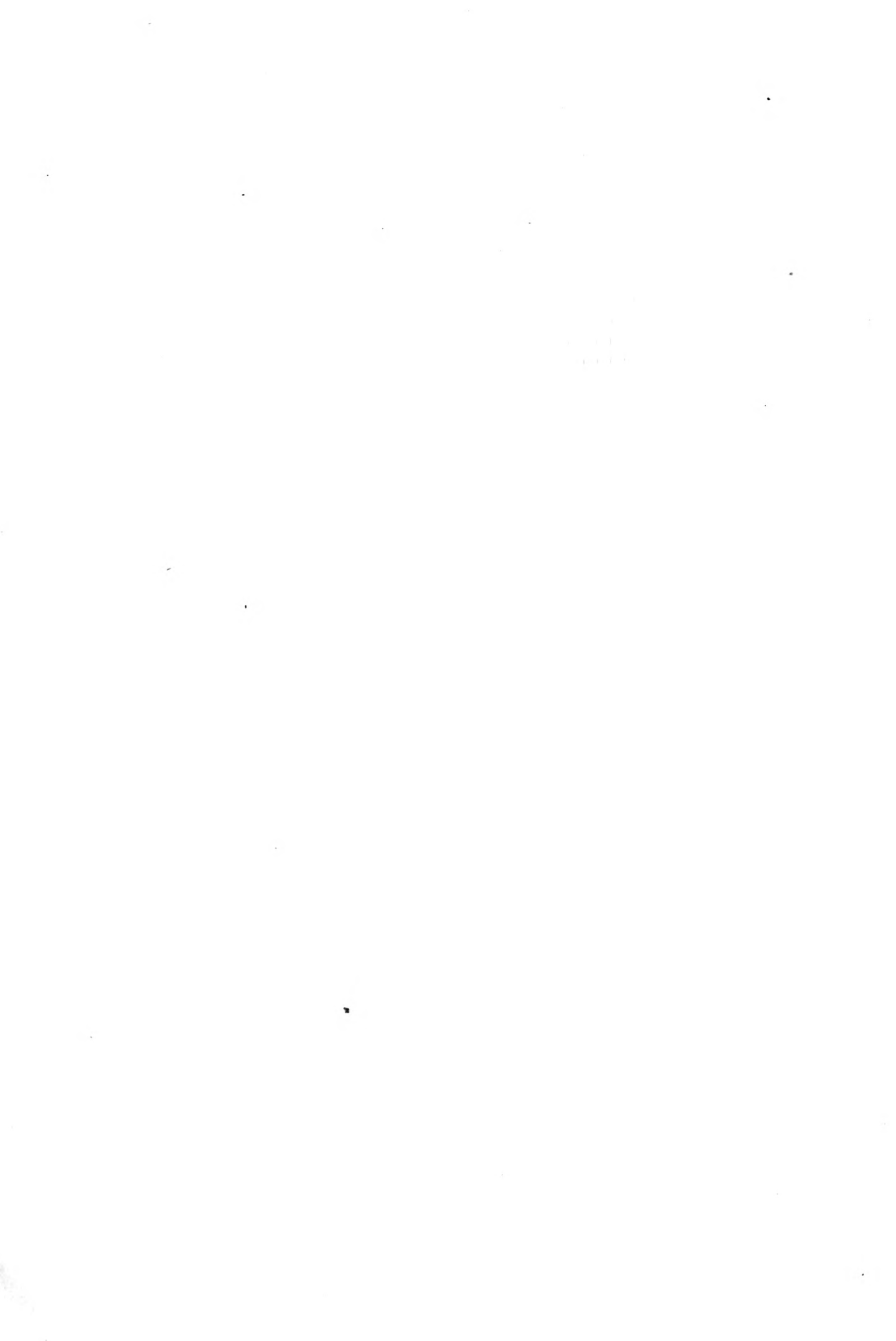
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THE
JOURNAL OF HORTICULTURE,
COTTAGE GARDENER,
AND
COUNTRY GENTLEMAN.

A JOURNAL OF HORTICULTURE, RURAL AND DOMESTIC ECONOMY, BOTANY AND
NATURAL HISTORY.

CONDUCTED BY

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TO OUR READERS.

OUR indefatigable critical friend, MISS PENELOPE POMEROY, wrote to us thus from Cackleton Hall:—

“What benefit am I to derive from the duty being taken off paper?—I mean as a purchaser of your Journal, *THE COTTAGE GARDENER*—for, as I told you, I shall never call it anything else. Do you mean to take off a penny, as the *Times* has done nobly?”

To which we replied—

“MADAM,

“We do not intend to take off a penny, nor even the smallest fraction of a penny. The removal of the Paper Duty is equal to about one farthing on each Number of our Journal; and as the price of paper has risen, we have no intention to reduce our price to twopence three-farthings, and incur even the loss of the recent rise in the cost of the paper on which it is printed.

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This reply was not satisfactory to MISS PENELOPE, and she rejoins—

“Just as I expected—just as it always is! The duty was taken off leather, and I still pay the same 16s. for my walking-boots to Mr. Leathersole, of Penzance. I should like to know what your other readers will say to your goings on.”

We are quite content to go before that Grand Jury; and we will anticipate as their return this extract from a letter written by a Clergyman, who, we think, will be accepted as their foreman:—

“We do not require the lowest possible priced paper, but we do want the best that can be had for threepence.”

We bow to that return, and we pledge ourselves to satisfy its requirement.

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WEEKLY CALENDAR.

Day of M'th	Day of Week.	APRIL 2-8, 1861.	WEATHER NEAR LONDON IN 1860.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
2	TU	EASTER TUESDAY.	29.203-29.059	46-33	S.W.	.22	m. h. 35 af 5	m. h. 32 af 6	m. h. 21 2	23	m. s. 3 35	92
3	W	Gentianella.	29.605-29.456	55-26	S.W.	.10	33 5	34 6	54 2	23	3 17	93
4	TH	Star of Bethlehem.	29.729-29.676	56-37	E.	—	30 5	36 6	17 3	24	3 0	94
5	F	Siberian Squill.	29.816-29.694	56-39	N.E.	.01	28 5	38 6	37 3	25	2 42	95
6	S	Soldanella.	29.828-29.738	60-30	N.E.	—	26 5	39 6	33 3	26	2 25	96
7	SUN	1st, OR LOW SUNDAY. PRINCE	29.864-29.824	63-36	S.W.	—	24 5	41 6	7 4	27	2 7	97
8	M	Alyssum saxatile. [LEOP. B. 1853.]	29.807-29.436	57-35	S.W.	.01	22 5	42 6	20 4	28	1 50	98

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 56° and 36° respectively. The greatest heat, 79°, occurred on the 7th, in 1859; and the lowest cold, 16°, on the 2nd in 1838. During the period 137 days were fine, and on 101 rain fell.

OUR ADDITIONAL NAME.



YES to the right—Noes to the left," said we, as we looked over the correspondence we had invited relative to our proposed alteration of title. When we came to the end of our division there could be no room for doubt, and we closed the counting of votes with "The Ayes have it."

Let it not be concluded, however, that those letters were few, or merely records of the writers' affirmative or negative opinion. Some were neutral and imparted the rough truth—"the title is of but little importance to us your readers;" some availed themselves of the opportunity to say what they required and what they took no interest in; and those who wished us, as one expresses it, "to be as ye be," argued strongly and earnestly.

One said, "People won't know you in a fine silk and satin dress. Stick to the corduroy and good Yorkshire broadcloth."

A second wrote, "I once tried to assist a man, as I thought, in extending his business; but I soon found all the money went for a new front, and in a few months a smash came."

A third declared, "The time-hallowed name of THE COTTAGE GARDENER is, I may say, 'familiar as household words' in many a nook and corner of old England. Why, then, change it? Why not preserve the unity of our future volumes?"

A fifth urged that "The present title is not quite so great a misnomer as at first sight appears. In addition to cottages 'where poor men lie,' are there not 'cottages of gentility?' Besides, make what change you will, your periodical will be called 'THE COTTAGE GARDENER' in spite of you, by buyers and vendors, till the end of the chapter—and may that be long distant."

A sixth argued—but we must publish our old supporter's letter entire:—

"The pure and simple title of 'COTTAGE GARDENER,' or as many called you, 'the Cottager,' was of itself very attractive. When you added the title of 'Country Gentleman' I did not think it an improvement of your nomenclature. But there, perhaps, was a sufficient reason, because you then entered upon pursuits and amusements which appertain to the 'Country Gentleman,' and I think that the majority of your supporters will agree that your present appropriate title will embrace all that can be collected in Horticulture, Floriculture, Agriculture, and, I may say, Omniculture, to say nothing of the 'Chronicles' of the Poultry Kings.

"I for one hope that you will not alter your pleasant name, although, by-the-by, you have just arrived at your twenty-fifth period—a time of life when ladies do begin to get uncommonly

fidgety about changing their names. I trust, however, that you are too well and happily domiciled to be influenced like some of them; and I hope you will not take it amiss if I heartily wish that you may retain unaltered your present attractive and homely name until you have doubled or trebled your present age, growing stouter 'typically' as you advance in years. I have little doubt that since your first appearance many a cottage gardener has, by his industry, perseverance, and your aid, become a country gentleman; but of this I am certain—that you have taught many a country gentleman the pleasure and advantage of being a cottage gardener."—W. W.

Now, strange as it may seem, these remonstrant and kindly expressed letters reconcile us to the addition to our title, for they do not foreshadow a single evil that will follow upon the change. We can assure our friends that we do not intend to dress in future "in silk and satin," and we shall stick as heretofore "to the corduroy and good Yorkshire broadcloth." Moreover, we are not "spending money" upon "a new front," nor do we think the addition to our old front will induce "a smash;" neither shall we be grieved by being called "THE COTTAGE GARDENER in spite of us," nor do we fear ceasing being "familiar as household words;" indeed every letter shows that we are associated with the "blithe blink" of their writers' "ain firesides," and that's a guarantee to our remaining there "to the end of the chapter." As to the "unity of future volumes" with their predecessors, we have made arrangements for that; and if we are "fidgety," like ladies of "twenty-five," to "change our name," it is only because we have a good match in prospect and the preceding approval of our friends.

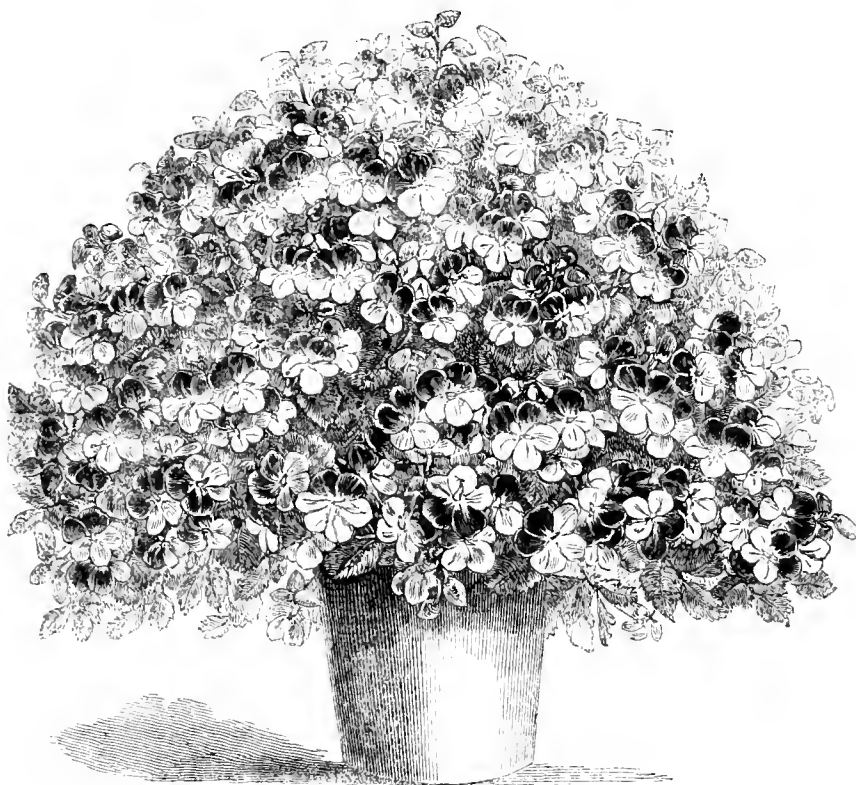
The chief difficulty has been to select from the matches proposed. One old friend, writing from Cheltenham—that town of connubialities—placed before us no less than fifteen which be considered eligible, and very mature deliberation only induced us to accept the name under which we this day appear.

"But what is the real inducement to the change?" asks a lady; and this letter embraces our reply—it is from one of long experience in the literary world.

"I am greatly pleased to see that you are following the right policy—namely, increasing the size of your Journal as it prospers, and thus giving the public a share in its success: this will induce still further good feeling among its subscribers. I have long felt how entirely it has outstripped its original cognomen; and it is not conducive to your own interest to call it 'THE COTTAGE GARDENER,' when, in truth, it circulates more largely than any other journal among professional gardeners and the gentry who delight in gardening. And let me appeal to your self-esteem by observing that when quoted from, there is not much dignity in your appended name."—J. S.

Now, we have not a single additional reason to add to those stated by our friend; and having thus made our public confession, we will at once conclude with this monition by a high authority, "Be not given to change, but never hesitate from changing if the purpose be honest, and the object truth."

GROWING SPECIMEN PELARGONIUMS.



THE above woodcut is a representation of a specimen Pelargonium that was exhibited and presented to Her Majesty the Queen.

This picture will give our readers an idea how such a plant can be grown; and I think they will all agree that it was as good and as perfect a specimen as could be wished for. The method by which such a plant can be produced may not be so well known; but by tolerable care and earnest perseverance through all the stages and points of culture, any one possessing a good greenhouse, and a cold pit or frame, may grow one or more equally fine.

In order that any amateur or gardener having the means and the laudable ambition to try to produce such a specimen may succeed, I will state the results of my experience; and the first advice I would give them is that they lay this down as a law, like that of the Medes and Persians, to be unaltered or undeviated from—*Never let the leaves of plants intended for specimens touch the leaves of neighbouring plants.*

As they grow larger they must have more space, and that space will not be wasted; for one shapely, well-grown, and freely-bloomed plant will give more pleasure to the spectator with good taste than half a dozen drawn plants; though, as far as space is concerned, they may produce equally as many blossoms.

Another primary rule of almost equal importance is so to place the plants that every leaf shall have an equal share of light. It is well known that light is necessary to keep the leaves healthy and of an equally deep green colour. To manage this with the greatest ease, a span-roofed house running east and west is the best form. In such a house the greatest number of leaves receive their share of sunlight. In a lean-to house, the plants, in order that the leaves may all enjoy the same advan-

tage, must necessarily be turned round frequently, which, under ordinary circumstances, is a considerable trouble. This trouble might be in great measure avoided by placing each plant in a feeder with holes in it to let out the water; and the feeder and pot set upon a round, flat piece of wood set on a pivot, like the top of a music-stool. If this piece of wood had notches made on its edge, a long and strong stick with a flat, sharp end, could be inserted in one of the notches, and by pushing sideways the plant would, of course, move round. By this simple and cheap contrivance, a man would be able in a few minutes to turn round the plants in a good-sized house, thus saving a large amount of time; and he would also avoid any danger of breaking the leaves or branches with his arms—a danger that often occurs when the plants have to be turned round in the ordinary way.

Equally important for the health of plants is that each should have its due supply of fresh air on all favourable occasions. Fresh air is as necessary for plants as for animals. Where too great a number of plants are crowded into a house, they will be injured in health just like human beings. The gas they emit should be expelled from the house, and fresh pure air admitted for the plants to inspire; due regard being paid that the admitted air is not too cold, being warmed as it enters by passing over a heated surface, such as a flue or hot-water pipes.

Soil.—Every cultivator who has had any experience and exercises his thinking powers, soon finds out that different plants require different soils. Pelargoniums require a strong soil—that is, good sound loam, such as will grow Melons. The top spit of a pasture will answer well. Let it be carted home and laid up in a long ridge so as to expose as large a surface to the air as possible. Keep it clear of weeds, and let it be turned over two or

three times. To two parts of this loam add one part of two-year-old cowdung, well turned over frequently. Old hotbed dung treated similarly will do nearly but not quite as well. Then add about one part of river sand and bits of charcoal mixed. Let all these ingredients be kept in separate heaps till wanted for potting, then mix them in the above proportions and use them moderately dry. This compost should be used to grow and bloom the plants in. For the winter season use a small quantity of leaf mould instead of the dung. Fresh soil is always to be preferred, for old soil is apt to become cloddy and sour.

Procuring the Plants.—The best time to procure young plants is in April. Plants struck early the previous season are the best to commence with to lay a foundation for specimens. Choose such as are dwarf—that is, with a centre or main stem about two inches high, and branching from it three shoots as near each other as possible. If, however, the plant is stout and with leaves nearly down to the pot, then one or two shoots would do; but, then, these must be stopped in close to obtain three shoots of equal strength to form the frame of the future specimen.

Supposing the plants have to be procured from a respectable nurseryman at a distance—some one that grows specimens himself—you might safely leave the choice of the plants to him, only acquaint him in your order-letter with the purpose for which you require the plants. In 60-sized pots is the best size to commence with.

When the plants arrive place them in your greenhouse for a week or ten days to recover from the journey. In the meantime prepare your soil and mix it thoroughly, but do not sift it. Any rough pieces you may meet with lay on one side, they will be useful to put upon the drainage. Place this compost in a warm place to become aired and moderately dry previously to using. Look out also the proper-sized pots for this first shift. Large 48's, if the plants are strong and healthy, will be the suitable size. Have ready also a quantity of broken pots for drainage. If oyster-shells can be had they answer well to place over the hole at the bottom of the pot.

Potting.—Pelargoniums grown for specimens require potting twice in the year; the first potting being in the spring, and the second in the autumn. It is with the spring potting that we must first have to do.

All being ready, bring the young plants to the potting-bench, fix upon one to begin with, and put the drainage in a suitable-sized pot for it. Place first either a large crock or an oyster-shell over the hole; then lay a few largish crocks upon that, and then some smaller ones above them—the whole to occupy about three-fourths of an inch. Place a thin layer of moss upon the drainage, and upon that either a sprinkling of soot or charcoal dust. After that place a thin layer of the rougher parts of the compost, and finally a layer of soil. Then turn the plant out of the pot, pick out from it the old drainage, and loosen part of the roots, spreading them out over the new soil as much as possible. Then see that the collar of the roots is just below the rim of the pot, and fill in around the ball with the fresh soil, pressing it down gently as it is put in. When the pot is full give it a smart stroke or two upon the bench to settle the soil, level it neatly, leaving it about half an inch below the rim of the pot.

That finishes the potting of one; and when all are finished similarly, then give a good watering with tepid water and replace the plants in the greenhouse, bearing in mind my first warning—to give them plenty of space; also place them as near to the glass as may be convenient to give them proper attention in watering.

For a month or five weeks, whilst new roots are running into the fresh soil they will not need a large supply of water; but when the roots reach the sides of the pots, and the leaves and shoots are advancing in growth, then water will be required in abundance. They should never be allowed to flag. After a hot sunny

day let the plants, in addition to water at the roots, have a gentle dewing with the syringe: exercise discretion, however, in this point. No drops of water should be on the leaves the morning following: therefore the syringing should be used to the extent only that the water may be evaporated by the time the sun rises. T. APPELBY.

(To be continued.)

MAUVE AND MAGENTA.

THE beauty of these colours has often been dwelt upon, and now we have a most interesting treatise on their preparation from the pen of Mr. Robert Hunt, so well-known for his researches concerning the nature and properties of light.*

"A piece of wood and a lump of coal," observes Mr. Hunt, "have no particular resemblance to each other, but they belong to the same family—they are very near relations. The coal we burn, and which is dug from a thousand feet below the present surface of the earth, with most laborious toil and under circumstances of peculiar hazard to the miner, was once a forest growing in luxuriant beauty, in the splendour of a tropical sun. Myriads of ages have elapsed, mountains have been worn down, and their debris strewn over the buried forests. Hundreds of yards in thickness of sandstone and shale have to be pierced ere we reach our buried treasure, more valuable far than the "hoarded gold" of the enchanter Merlyn. In the depths and in the darkness of these rock formations chemical changes have gone on, resulting in the production of that coal which gives to our country her commercial supremacy, and to our ladies—Mauve and Magenta."

Whilst converting that coal into gas for the purposes of illumination we all know that a most pungently-smelling tar is produced; but, offensive as it is, "the chemist's magic art" has extracted from it several essences remarkable for their fragrance; and from the same black tar—to touch which was to be defiled—by a process of transmutation, the chemist has evoked a colour which has carried joy to the hearts of the Cardinals of Rome, and administered pleasure to the fashion-rulers of our own and other lands."

From the tar a blue colouring matter was first obtained, to which the name of *Aniline* has been given, because *Anil* is the name of a plant yielding Indigo. Aniline combines with sulphuric acid (oil of vitriol), taking the form of crystals which become red by exposure to the air: "and here is developed the secret of its producing the exquisite reds and purples of which we write."

"Mr. Perkins was the discoverer of the original Mauve. He was a student of Dr. Hoffmann's, and employed by that chemist to assist him in his investigations of the products from coal. The preparation of Aniline was described by Dr. Hoffmann, and he first showed that its presence could be detected by the violet colour it gave when treated with chlorine. This was the key to everything that has since been done, and it is not a little curious to see how the changes have been rung by the chemists on oxidising agents. A few examples will suffice:—

Salt of Aniline, with Bichromate of Potash...	Mauve and Perkins' Purple.
Ditto Bichloride of Mercury...	Magenta, and other Reds.
Ditto Bibromide of Tin...	Fuchstine, &c.
Ditto Nitric Acid...	Auriferous, Solfurina, &c.
Ditto Arsenic Acid...	Reds and Purples.
Ditto Peroxide of Lead...	Roseine.
Ditto Manganese Salts...	Pink, Red, and Purple, Solferina, &c.

This list might be considerably extended if there were any reason for so doing. Our purpose is answered if we have sufficiently explained the sources from which are now procured this class of charming colours, before which the boasted Tyrian or imperial purple must pale. The colour obtained from the shell-fish does not appear to have been a permanent colour; though costly, it was evanescent. The Mauve and Magenta are permanent colours. Light does not bleach them; the weaker acids do not stain them; the colour is dependent on the oxidation of the base of it, whereas, in nearly all other colours, the action of oxygen is to destroy the colour."

* This essay, entitled "Mauve and Magenta," is published in the 84th *James's Magazine*, the first Number of which has appeared this month. When we knew that the editorship of this periodical was entrusted to Mrs. Hall we expected that it would be characterised by a just appreciation of the beautiful, and a mingling of information with amusement. We are not disappointed, for it is one of the best of the monthlies.

REDLEAF AND ITS GARDENING.—No. 1.

As it is universally admitted that a bright day enhances the pleasure of all out-door gatherings, so does a fine neighbourhood improve the effect of well-directed skill towards embellishing a particular spot. As an instance of this, whoever has looked down from the Crystal Palace on the beautiful terrace below, without at the same time casting their eyes over the picturesque landscape by which that garden is surrounded? These natural advantages are so obvious, that we often look with pity on a good residence and grounds improperly placed for benefiting by the natural beauties by which it is surrounded. This defect, however, in no way affects the position chosen for the mansion and grounds of the place now under notice; for nothing possibly could be more judicious, even in a neighbourhood abounding in good positions.

The mansion and grounds of Redleaf, the seat of W. Wells, Esq., is on one of those eminences which form so pleasing a feature in the landscape of the south-western part of Kent. The ground is sufficiently undulating to be pleasing to the eye, without being too abrupt and precipitous to impede cultivation. Oak timber of the best description is sufficiently grown to give a clothed character to the district, without at the same time concealing the cultivated portion. The soil being a sort of yellow sandy loam, evidently impregnated more or less with iron matter, and resting on a sort of sandstone, which in some places crops out to the surface. But there are some stiff clays; and on the grounds at Redleaf, a natural slope facing the west consists of tolerable peat, or what in every sense answers as a substitute for it, so far as the welfare of the *Rhododendrons* and other things is concerned.

The mansion is a modern brick building, to which considerable additions have been recently made by its spirited owner. The approach is from the north-east, the principal fronts being on the east, south, and west sides.

The situation being elevated, the ground inclines rapidly to the west, and more gently and with some variation to the south, the east side being more level. The gardens and dressed grounds extend mostly to the south, south-east, and south-west of the mansion. The west side more quickly blends in with the park, which runs as a valley for some distance between the beautifully timbered ridges which flank it on either side. This valley extends for many miles, the view from this point being very interesting; the ridge forming the right flank presents many portions of its rocky surface to the eye, and the judicious mixture of deciduous and evergreen trees gives it a pleasing effect. The natural sloping ground uniting this ridge with that on which the mansion stands contains the natural peat alluded to, and is planted with *Rhododendrons* of good kinds, which seem so well at home that they ripen seed and sow themselves, plants of various sizes appearing amongst the Fern and other herbage, for this is not dressed ground. Some excellent specimens of *Cryptomeria japonica* and *Picea cephalonica* were growing amongst these *Rhododendrons* in luxuriant health, and some others of the *Pinus* tribe had been introduced with good effect, and with every prospect of their doing well.

In the foregoing outline of the natural features it will be seen that the most of the dressed ground is to the south of the mansion, and to the south-east and south-west of it; and although the whole, in farming phrase, may be said to lie within a compact ring fence, yet each department is separated from its neighbour by a sort of natural barrier, by which, on looking over the place, the visitor comes suddenly on some feature he had no reason to expect. These natural boundaries, or what, by a judicious assistance of art, seem to be natural divisions, often consisted of a projecting mass of natural rockwork, to which an excellent mode of appending other stones and tasteful planting gave an idea that Nature had done the whole. In another

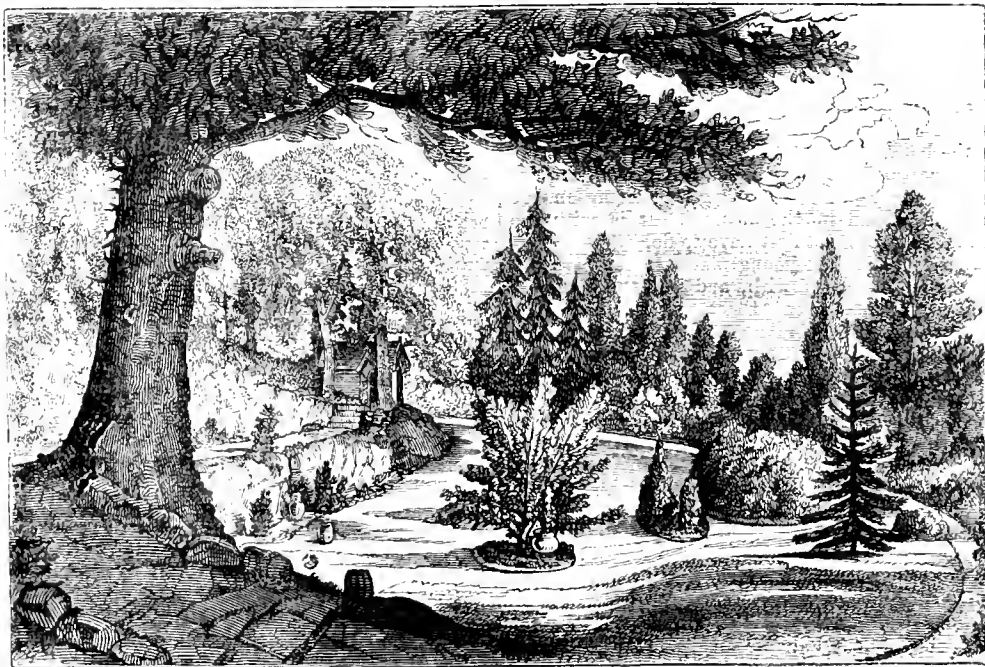


Fig. 1.—REDLEAF—The English Garden.

place an irregular mass of Hollies forms an impenetrable screen between two objects, both in themselves good, yet advisable to conceal from each other. At the same time care has been taken not to allow these barriers to interfere with the good view of distant scenery that every now and then claims attention; for be it observed, that with the exception of a Dutch flower garden and conservatory attached, the whole of the other portions of the grounds present that easy natural style which ignores straight lines, perfect levels, and geometric figures.

The engravings taken of different views of the grounds, which

we shall place before our readers, in many instances fall short of conveying a just conception of this remarkable place, and the taste and skill by which it has arrived at its present condition; but they may, nevertheless, be acceptable as conveying some idea of the beauties of the grounds.

Fig. 1 is a view of what for distinction we may call the "English Garden," which consists of a large space of nearly a circular shape. The view being from the west presents a mass of natural rock on the left, or north side, with a fine *Magnolia* conspicuous in the centre, and an equally fine *Cryptomeria*

japonica, and other plants equally good. The whole of this space is well-kept turf with a walk surrounding it. On the outer side of this walk, on the south side, is a border of Roses backed by choice shrubs; and a series of oval-shaped beds (not shown in the figure) form a sort of chain on the grass on the inner side. The walk ascends to the top of the rocky eminence on the north side, and enters a summer-house (as shown in the engraving), the exterior of which presents some of the features of a Swiss cottage. Internally it is fitted up by the floors and walls being inlaid with woods of different kinds arranged in geometric patterns, but no varnish or French polish to destroy the character for natural simplicity which it is intended to convey, the roof being shingles. An inner compartment contains some fine specimens of porcelain and other rarities.

The position of the summer-house—on a ledge of rock over-

looking a garden containing some excellent specimens of Araucarias, Rhododendrons, with some Camellias and Azaleas on the approach to it—is beautiful in the extreme, as it is not crowded. The rock itself is in some places clothed with dwarf-growing Rhododendrons, with a little Ivy and other things, but in no instance crowded nor yet showing the equally objectionable feature of having been cut to keep it in bounds. Sufficient of the rock is shown to produce a pleasing effect, which is in some degree increased by a noble Oak tree shown in the foreground, and I have no doubt but in summer the beds will be rich with the choicest bedding plants; but at all times the scenery is attractive, and, secluded as it appears to be from the outward world, it is easy to picture the conjectures a playful imagination may bring up to second objects in themselves approaching so near the ideal of perfection.



Fig. 2.—REDLEAF—View from the drawing-room window.

The above is a west view from the mansion, which has, in some measure, been explained before. The valley, which near the mansion does not exceed a quarter of a mile in width, widens out in the distance, the extreme view being, I believe, upwards of twenty miles.

The rocky ridge on the north side near the house presents among other very noble trees some fine Oaks mingled with Scotch Firs, and now and then a Cedar of Lebanon jutting out in a manner that promises at some future day to rival the Oak in its proportions.

The grounds immediately in front of the mansion at this side present no particular object, but shelving down to the park seem to unite with it; the fence being in most places concealed

by the inequalities of the ground, a piece of water in one place forming the boundary.

The park, wisely, is not encumbered by trees in this direction, the ridges at right and left constituting sufficient shelter; but on the northern slope against a mass of rock, a rifle-butt stood out conspicuously, showing that even in this "happy valley" the laudable desire of uniting, in case of need, to defend our common country against all invaders is not forgotten, and, assuredly, no object can be more praiseworthy.

The natural hill or slope to the north of the house contains the peat earth before alluded to; and being planted with choice things, with occasional common ones as nurses, will at some future time be an important feature.—J. ROBSON.

(To be continued.)

EXHIBITION OF UNFORCED HYACINTHS.

MESSRS. ARTHUR HENDERSON AND CO., PINE APPLE PLACE, NURSERY, EDGWARE ROAD.

YESTERDAY, and during the last days of March, the good people of London had access to the first public exhibition of unforced Hyacinths on record. Miss Burdett Coutts and Madame Van der Hoop were hardly in their carriages from the Messrs. Cutbush's brilliant entertainment up at Highgate, when I heard of their resolve to meet some of their best admirers among the fashionables of the West End, at Pine Apple Place, on the following week, on free-and-easy terms, without forcing and without restraint. It is quite true that I was already "engaged" for a very different party on the south side of the Thames, as you will probably hear next week, and rejoice; but I could not resist the temptation of going to see the present fashion, the prevailing colours, and the style of getting up a *soirée* of Hyacinths, without forcing any one to it or for it. Nothing sweeter or more gay was ever seen in London before, and certainly nothing more charming. But believe me not, go and see for yourself.

This was my nursery for dressing and decorations when I first took to the fashions, and to ladies' colours and fancies. If you go you will find there every dress, and all the styles of dress, which I chronicled from the assembly at Highgate, are perfectly true to the letter and to the last shade of colour. You will also find on the south front of the exhibition-room and on the farthest half of it from the entrance, a complete assortment of

bedding Hyacinths, not in ribbon setting as at Highgate, but flanked with the best and gayest early Tulips. On the same front, and cross-cornered fashion, you will find that brilliant sameness of dress peculiar solely to that sweet class of bulbous flowers called Polyanthus Narcissus—one of the most beautiful and melancholy of all our classic names for flowers, and just as true as Ovid has made it melancholy.

The exhibition is held in the Lapageria-house, the Lapageria rosea covering the whole extent of the farthest end of the house to the extent of 20 feet in width, 9 feet in height, and runs along the rafters on both sides of the span roof to the extent of 15 feet more by the time it is in bloom. Over and above all that liberty a sucker-like shoot darts up here and there from the crown of the roots in early May, and runs its course to the extent of 20 feet by the end of August, and then blooms on like the free branchy growth of the head itself till the turn of the new year—the most splendid object in cultivation, and the coldest greenhouse is fit for such another display of hanging Lilies in bells and wreaths of the richest crimson softened down with tints of gold, and of vermilion in *pudibundus* slading. There is a large slate platform down the centre of this house, and others of the like material along both sides of it, with an ample passage all round; and the whole is filled with Hyacinths, Tulips, and Narcissuses alone, barring a thick, close

edging of Musk Minulus all round the middle platform; and a line of upright "greens" along its centre to the extent of 40 feet or so—consisting of *Araucarias*, as *excelsa*, *Cookii*, and the Brazilian forms of them; *Calitris australis*, the best of all "furnishing" evergreens, as no amount of bad usage, in confused passages upstairs or down, seems to harm it in the least—and what is more graceful out on the lawn in summer than a well-grown specimen of the graceful *Callitris*? Also *Dacrydium cupressinum*, with its drooping branches as if they were made of the Scotch *Lycopodium selaginoides*, and stuck on stems of *L. selago* itself—the latter the best remedy for all vermin which infest every variety and race of dogs, as I can testify from long experience: all these worked artistically from a centre plant of *Araucaria excelsa*, and all plunged in green moss.

All the double Hyacinths are said by this firm to do best in pots, boxes, or the open ground, "whereas the single varieties, when properly treated, rarely failed to reward the cultivator with fine spikes of flowers: therefore we recommend single Hyacinths for glasses, vases, China bowls, and for early flowering." And for all these purposes they give sound practical instructions and selected lists in their bulb catalogue, from which I have just quoted.

And now to the grand Show itself—and I will begin with *Double Red, Rose*, and *Pink*. *Comtesse de la Coste* is a first-rate deep rose. Duke of Wellington the same, with a lighter red. Groot Voorst, which I forced nearly forty years, is yet without a rival among double blushes. Another bedding beauty, and one of the best forcers—*Regina Victoria*, which you will find at the farthest end of the south stage, as I can now see it, is unrivalled as a waxy Peach Blossom of the finest shape; and *Waterloo* is still as good as when I first knew it—a dark rose red, and cheap to bed by the score.

Double Whites.—Same as I said of them the previous week, with the addition of *Triumph*, *Elandina*, and *Prince of Waterloo*—two very telling sorts, and very good for bedding.

Double Blue, Purple, and *Porcelain* (or very light caste of blue).—Old Laureus Custer, again only beaten in true blues by Sir Colin Campbell; but Rembrandt (shaded mauve) and Van Speyk are both up with Sir Colin. The rest of this section as at Highgate.

Single Red.—*L'Ami du Cœur* is one of the oldest and best forcers in this class, and I should think, a first-rate bedder, and is one of the cheapest. I shall never stoop to that vulgar mistake of preferring a new plant or a new colour to an old one equally good, and perhaps better, by being cheap enough for all consciences. But I have a dread of horrid foreign names, and here is the very worst of them for one of the best of the forcing red Hyacinths—*Diebitch Sabalskanski*. Madame Hodson is also a very fine light pink of great beauty. Amy, Florence Nightingale, and Mrs. Beecher Stow are still my own three greatest favourites in this class. Apellius, Cavaignac, Circe, Lina, Robert Steiger, and Schiller are all as good, or very nearly so.

Single White.—A gentleman of our Floral Committee put it to me at our last meeting thus:—"Which do you consider the best white Hyacinth?" "Madame Van der Hoop," I said at once. "Well," he said, "you are not far out—perhaps you are quite right;" but he considered Grand Vainqueur always as the very best. Now, if the two were before us for the first time and as new kinds, I would move to vote for a first-class certificate for Madame Van der Hoop; and if I carried it by a majority, and he moved for the credit for Grand Vainqueur, I would second him—that would be equivalent to saying they are both best. Dolly Varden, a blush; Elfrida, another blush; Gigantea, another the same; Grande Vidette, clear white; Orondates, the clearest white; and Victoria regina, fine waxy white, are all first-rate flowers in this class. Of single Lilacs with mauve tints—Dandy and Unique are the best.

Single Blue, Purple, and *Porcelain*.—Enrieus is still the best forcer in this beautiful group. Argus, Baron von Humboldt, and Baron von Thyll the next best. Charles Dickens is very fine, and so is Couronne de Celle. Mimosa is superior to the old *L'Ami du Cœur*, which is one of the best blues for forcing and flower gardens; and the Porcelain Sceptre and General Havelock, the next to Mimosa, both being first-rate.

Of Crocuses—David Rizzio, Prince Albert, and Ne Plus Ultra were the best purples. Queen Victoria the best white, and Majestouse the best in Sir Walter Scott's strain, but not much larger than Sir Walter this time.

Narcissuses—Superbissima was the best yellow pale perianth, and deep yellow cup; Queen of Yellows next best, and both

superior to our old favourite Soliel d'Or. Gloriosa and Queen Victoria the two best whites with yellow cups, and both superior to the old Bazelman major, which held the sway so long. Maximus, or Yellow Trumpet, is a splendid thing to force and to make large beds of (it is not of the Polyanthus race); and Ajax bicolor, major, minor, and minimus or pusillus, are edging plants for spring beds which I have used for years, and found there the true pusillus, which I had been long looking out for. I still want Narcissus papyriferus with six to eight flowers on a spike—one of the earliest, and would pass for a Polyanthus Narcissus. A gentleman told me last year that Mr. Stephen Brown, of Sudbury, Suffolk, sells it, and I ordered Mr. Henderson to procure it for me. How strange that such a beautiful flower should be so little known, and so much neglected! Mr. Arthur Henderson had *Cunningia trimaculata*, with which I was familiar in 1823 and 1824 as a *Conanthera*, and every other bulb you could mention from that day to this, all as cheap as Potatoes, and yet country gardens are starved out of them from sheer ignorance of the existence of such things; while Stinging Nettles are run after if there is a variegated spot on a leaf of them!

Then the summer of 1859 had put the spell off the Russian and German Ivy plant *Ipomœa hederifolia*, and it flowered out of doors against a south wall—a pale lilac *Convolvulus*-looking flower, just as Plumier painted it. When Mr. Masson travelled in Russia and the north of Europe, and wrote his notes six or seven years back, he said the nobles in Russia had backgrounds of Ivy to all their drawing-room decorations of flowers in the dead of winter; but nobody in London could understand how they managed their Ivy, and, being then out of humour with the Russians, they did not care much about the loss of their way of growing the Ivy. But when I was last at the Clapton Nursery I met a nurseryman there from the north of Prussia, and we rode in the same bus, and there I got at the secret. He said the Ivy was never so used in as far as he travelled on his yearly rounds in Russia. But there, and with them in Germany, the *Ipomœa hederifolia* had been time out of mind trained in narrow boxes for in-door decorations in winter; and by mixing it with flowers, and backing flowers with it, nothing in its way could possibly excel it. No matter how hot, or how dry was the air of their living-rooms, the "German Ivy," as he called it, was sure to be at home there, or elsewhere away from the frost; train it up inside their double-glazed windows, or over their mantelpieces, or against the walls anyhow, no hurt or harm, or insect ever went near it. "But you in this happy England," he concluded, "have no difficulty in greens; for everything keeps green with you, and you have no need of them." But you heard last week of the Highland welcome which this same German Ivy has met with in New York, where our Ivy has no chance against the frost; and may we not after all have a leaf out of their books?

What would you say to a *Euphorbia jacquiniiflora* trained to a trellis which had been previously Iried all over as thick as the ruins of the monastery of Monkbarrow, to stand in the front drawing-room against one of the paper panels, and to last there for six weeks in splendid bloom in the dead of winter? Or how would it look in lieu of muslin curtains across the bottom of the window in your office, or rather in place of the everlasting network blinds you are so safely screened behind? Would not a thick screen of Ivy leaves, trained from a handsome box below the sill, do for blinds? and might they not also be got up higher to serve for curtains at the same time, and put you in mind of the country in the midst of London?

But what most struck me in the Pine Apple Place Nursery was the high style of culture given to all the plants, no matter where placed; the specimen stove plants in a house at the upper end of the nursery, and the house for the greenhouse specimen plants, together with the show-house, as you enter the gate, are the three best evidences of good cultivation and arrangement I ever saw so early in the season; and I should say that in about six weeks the New Holland house alone would be worth a journey to London to see it in bloom. But that would be the least part of my object, as I had so often seen all the best of them in bloom: it is the style, the potting, the outlines of the plants, their different sizes, their health, and the absence of all traces of insects that would amaze me, after knowing all that could have been done during the lifetime of the father of the young men who now attend to them, and the whole collection is on the self-same footing.

The *Ficus repens*—a very different plant from the *repens* so called, against the back wall of the specimen stove, sticks to it

like Ivy, and hangs out from it as regularly as the ears in harvest, just like Sweet Bay leaves—is the finest screen for a back wall I ever saw. Here everything good and handsome is grown as a specimen, just as if it were for the Show. *Medinilla magnifica* in full bloom—and if the Messrs. Veitch had never introduced another plant, they might be proud of their success through this plant alone. *Euphorbia jacquiniiflora*, lots of, in bloom. *Gordonia javanica*, an excellent forcing Tea plant in full bloom. *Ardisia undulata*, plants by the hundreds, and the white or yellow-berried kind of it grafted just as freely, and all for decorating the dinner-tables in London with their holly-like berries. One grower near London grows one thousand *Ardisia undulata* each year for the London market. *Hippeastrum reticulatum*, which I feared was dead and gone “lang syne,” was there sure as certain, and not so high-priced as one might think, considering it is the best and the scarcest of all our ancient families. We had a rumour with some one in our early days about the reticulate of this very plant, he saying the reticulation, or the network-like veins, were in the leaves; and we the contrary—that the net was on the flower, which is of a light crimson colour, with a white star round the eye, and a broad white longitudinal band down the centre of each leaf, and a large pot of it would make a better variegated specimen for exhibition than many that have been tried. The white variegated *Agapanthus* is getting a lift here to hurry it on in growth, being a very slow goer, but a beautiful thing when of a large leafy size.

Begonias all of the best sections, and the crosses from Marshallii by Rex, have a fleece of snow-like spots all over the leaves on both sides of the milky way—the zone or sonata of our “Proceedings.” I was very much gratified to hear Mr. Henderson say that the report of this class by Mr. Moore, and the selection by the Floral Committee, were both most excellent and trustworthy; but we owe it all to the high style in which Mr. Eyles and his men got them up for examination; and equally so to hear the Baron Rothschild in his garden, near Paris, had large edgings of both Rex and Marshallii last season, and that they were the most exotic sight on the whole continent.

The greenhouse specimen-house is full of all the best leading plants recently potted and making rapid growth—really a sight of itself. A large specimen of *Brachysema longifolia* is a perfect mass of scarlet pea-blossoms, and is one of the few plants of that style which sets its flower-buds in the autumn, and may be slightly forced to come in in January, or any time in the spring. *Pultenaea subumbellata* in full bloom; *Loddigesia bellidifolia* the same; *Acacia rotundifolia*, very slender and drooping, is a fit subject for hanging-baskets, and such are in great demand; *Aphelaxis*, of sorts, bursting their rich, shining, crimson flower-buds, for “everlastings;” *Epacris ceriflora*, a white, early-flowering species, the hardiest and most useful of the family, as it may be forced very gently to come in any time in winter, and all of them may be forced the same way from November; *Acacia Drummondii*, in whole dozens, and all bloom as free as Crocuses, but never seed unless the plant is half-starved, and not fit to be seen; *Platylobium parviflorum*, one mass of yellow and brown blossoms. In another house were a lot of *Araucaria Cookii* recently sent over by Mr. Moore, of the colonial botanic garden at Sydney. When I first knew Mr. Moore he was a little fellow in the seed-shop at Pine Apple Place, and getting no more shillings a-week than he now gets hundreds a-year, and richly deserves them for his services in the good cause. This house was full of rare useful things, from the *Arabis variegata*, in hundreds, for edgings to *Blandfordia nobilis*—one of the finest Australian bulb-like plants. *Anopterus glandulosus* with its long upright spikes of *Arbutus*-like blossoms, which come early in spring; *Dyckia rariflora*, a scarlet representative of the American Aloe, which would do for an age in a No. 48 pot, and bloom every year of its life; *Nerines*, *Pentlandias*, *Trilliums*, *Camassias*, *Coburgias*, *Alströmerias*, *Cladanthus*, *Phædranassa*, *Zephyranthes*, *Gloriosas*, *Griffimias*, *Hæmanthus*, *Cypellus*, *Calochortus*, *Cyrtanthus*, *Ismenes*, *Lycoris*, *Habranthus*, *Rigidellas*, *Tritelejas*, *Bomarea*, *Bravoa*, *Milla biflora* at last, *Brodieas*, with *Caladiums*, *Crinum*, *Amaryllises*, *Cypripediums*, *Eucharis*, *Vallota* and many others; and all with more or less kinds of species and varieties of the first order of merit; but they are not bedding plants, and therefore not sought after, but by a few knowing customers who delight in having some of all the best flowers of the creation.

In a large three-spanned-roofed house were the *Gloxinias* all showing for bloom to meet the early demand of the London season. Great quantities of the Indian Fig, *Ficus elastica*—the aristocratic London plant for the front drawing-rooms; all the finer Cannas, of which bicolor and iridiflora—the former for

its leaves, the other for its splendid flowers—are the most deserving; *Hibbechinum aurantiacum*, a weedy-looking plant, with the richest of all yellow shades of colour; the *Vitellinum*, or yolk-of-egg colour, and even the true Magenta colour—the only plant we yet know which produces the true Magenta, and that is the colour of the flower-stalks of the American Poke, or *Phytolacca decandra*—a very old shrubby plant, which every one who raises seedlings ought to grow to compare his seedlings with in the autumn, as Magenta is now the great want of the day.

The old stove is brimful of Ferns and fineries, of which *Platynerium grande* is the most out-of-the-way; but I shall have a new start with it shortly—a far better way of doing it than at present. In the old Orchid-house is a large planted-out climber, which few have yet done half so well or even know of. It is *Clerodendron speciosissimum*, the fellow to splendens, but requires a very different treatment: but I should get what I often require if I were to enlarge on it at the tail of a story like this. *Bougainvillea spectabilis*, the highest mauve; *Dracenas* by the scores for dinner-tables; *Caladiums* by the dozens. But who can bide all this? Let me, however, say of a recent cut from Paris, that *Dracena congesta* is there seen in all their best shops and houses, as the *Acacia lophantha* is seen down at Canterbury, the Indian Fig in London, or the Aaron's Beard in country cottages—a universal favourite, and graceful-looking Pampas-Grass-like leaves. Also *Wellingtonias* out in bushel baskets 2 feet across, to be planted baskets and all, and no hurt or cramping to the roots. I think we owe this most excellent plant to Mr. Rivers, who, with M. Naudin, calls “geothermal” earth *heat*, while the true meaning of the word is just what we all want—and that is earth *warmth*. D. BEATON.

ICE-HOUSE VENTILATION.

HAVING observed the remarks upon ice-houses in THE COTTAGE GARDENER of March 19th, “A SUBSCRIBER” would feel much obliged by having some information upon the best means of ventilating an ice-house, which is constructed thus:—The well is sunk about 5 feet, surrounded by two brick walls with a space between them. That part of the outer wall above the surface, about 5 feet, is surrounded by a bank of clay. The well is about 10 feet across. The roof is very steep, and has about a yard thickness of straw upon it. The ice is broken up small, and piled up into a cone. The ice is placed upon small pieces of wood, so that there may be a cavity underneath: at the bottom there is a trap-drain, to avoid having a current of air from below. The well is lined with straw, so that the moisture may run down the straws to the drain. There are three doors facing the north. The spaces between them are filled up by sand. No air can enter. Could anything be done now that the ice is in? It would be a great convenience if any method could be advised so as to avoid removing the sand every time the ice is wanted—and last year there was considerable waste.—E. T.

[The sand and straw are the causes of the loss of ice. If iron hurdles which would keep out cats and dogs were where the doors now are, and all the sand were removed, and a small opening were made in the highest part of the dome of the roof, with a cap supported a little above the opening to prevent the rain from getting in, a current of air would pass from the outer door (and no second door is at all necessary) through the passage and out of the top of the dome. Then there should be 6 inches of very loose straw put on the top of the ice to keep the current from the surface—not between the ice and the brickwork, which is a wrong idea altogether, and has melted ten times more ice than ever it could save. Every inch of the straw is soon full of confined air damped to the point of saturation, and that is what melts the ice. The longer and the drier the passage is, the faster the vapour is carried off from the ice. Dry air in rapid motion has a thirsting power of sucking up damp, and damp warmed by confined air into vapour is always, and in all places, more destructive to ice than the blast of a furnace. That we have ourselves proved over and over again; and we have cured one of the largest and worst ice-houses in the kingdom by the same means as we now propose to you. For ten years previously the family derived no more use of the ice in that ice-house than the keeping of things which would not keep so well in the larder. We heard of the airing plan having been adopted by some clever scientific architect, who

built a famous ice-house for a large family above ground. The gentleman for whom that house was built told us the story, and the reasons of the man of science, and that led to our own ideas and practice of some years being cast into the current; and some other fixed notions of the age might well be spared to go the same way, but none more so than the old notions for keeping ice. Ice-houses should never have been built under ground at all, that is just their ruin; and if they could be built on cradles above ground, like corn-stacks, and then sufficiently covered with non-conductors, that would give the least waste of all. Ice-stacks built on "flats," made in the face of a steep bank facing the north, is the next safest plan, and is the most practicable now; but a stack of ice at the bottom of any high ground is in the next worst position to a well of ice in the bosom of the earth.—D. BEATON.]

THE SPRING MANAGEMENT OF CARNATIONS AND PICOTEEES.

MR. BEATON is quite right in saying that the Royal Horticultural Society, since the formation on a broad and liberal basis of the Floral Committee, now, for the first time in its history, has the advantage of real practical florists; and I quite agree with him that great profit may be derived from the mutual intercourse of such and gardeners in general. Our own pages show how much this interest is increased, and that one kind of fancy encourages another. I know it has been the fashion with some (I am not sure that I do not recollect some sly tilts of D. B. himself) to decry the rage of florists for shape and smooth edge, and the other points of a florist's fancy; but let two flowers be placed together, one indifferent in a florist's qualities, the other up to the mark, and I am quite sure it will be at once seen that shape, &c., have a good deal to say to beauty. Look, friend, at Mrs. X., with a figure somewhat like a sack tied in the middle—is she as good an object to feast one's eyes upon as Mrs. C., with her slight ladylike figure, even though her rival may have plenty of colour both on her face and in her attire? And so form, I say, in the first instance, then colour afterwards.

This much by way of preface to a few remarks on the spring culture of a flower, which owes no little of its beauty to the zeal and discriminating taste of those hybridisers who have said we must have form—who have set before themselves an ideal, and have worked up to that until little is left now to be desired in that respect. It has obtained size and thickness of petal, smoothness of edge, circularity of outline and depth of bloom; but, of course, after much toil and continued weeding of inferior varieties from the list. The last season was as unfavourable to them as it was to everything else. Great difficulty was experienced in getting the layers to root; and Mr. Turner, the largest grower of them in the south of England, has hardly sent out any, I believe, until the spring, allowing them to root better before doing so: consequently those who wish to begin growing this very sweet and beautiful flower, can have no better time for adding to their collection a few favourites than the present.

Let me suppose that these have been procured (I shall add a list of a few good ones in each class), and that an amateur wishes to commence their growth. Having thus caught your hare, the next thing is to see to the cooking thereof. The most certain method is to grow in pots, for wireworm and other abominations are likely to destroy your rising hopes if grown in a bed. Pots about 9 inches across are the best. Unfortunately, I have learned by bitter experience that larger-sized ones are a nuisance in every way, and do not grow the plants as well; the only advantage they possess being that they offer a broader space to layer in. The pots ought to be quite half filled with coarse drainage, and then a little moss placed on top of that. The compost should now be put in. This ought to consist of good sound yellow loam, well-rotted frame manure, and leaf mould in about equal parts, with a little road grit to keep it open. Let every handful of the compost be passed under your hand and eye, and carefully look for the foul form of a nasty yellow grub, called a wireworm, which has a disagreeable habit of getting into the centre pith of the plant, eating out all its heart, and then decamping in quest of another. Immolate him without mercy on the shrine of Flora if you catch him. This being done, fill in your pot nearly full with compost, and then prepare to put in your plants, a pair in each pot. If these have been kept in single pots all the winter they will turn out all the

better, as the less the roots are disturbed the sooner they will lay hold of their new quarters. Now fill in with compost, give the pots a good shake, and then water either with a fine rose or a syringe. They may then be placed for a week or two in some sheltered position until they become established, and after that removed to some open place. The centre of the walk I find to be as good a place as they can be in. When the flower-stem commences to run up they should be tied to stakes—one in the centre of the pot will be sufficient. Weeds must be carefully taken out, and, if the weather be dry, watering be attended to; and as the summer advances, I hope to say something more with regard to their management for blooming.

They have been divided into various classes. Carnations into scarlet bizarres, crimson bizarres, pink and purple bizarres, purple flakes, rose flakes, scarlet flakes; and Picotees into red, purple, and rose-edged ones. By-the-by, I have noticed some (to those unacquainted with them) most misleading advertisements of seeds under each of these different heads, as if they were to be had *distinct*—whereas one pod of seed is just as likely as not to produce every one of the kinds named, so it really only answers the purpose of selling a dozen packets of seeds instead of one. I have also remarked seeds of Pelargoniums advertised with the names of the flowers the seed has been saved from. But unless these have been carefully crossed, their having one parent good is very little use, and no guarantee whatever in any case that the seedling will partake of the parents' character.

I now give a list of some really good kinds, and such as are of good constitution; my object being to encourage beginners, and not to set them to grow varieties which baffle even old cultivators.

CARNATIONS.

Scarlet Bizarres.

Captain Thompson (Puxley)
Mr. Ainsworth (Holland)
Oliver Goldsmith (Turner)
William Pitt (Puxley)

Pink and Purple Bizarres.

Falconbridge (May)
Lady of the Lake (Hale)
Sarah Payne (Puxley)
Shakespeare (Puxley)

Crimson Bizarres.

Chancellor (Puxley)
Orestes (Puxley)
Premier (Puxley)
Sir George Brown (Puxley)

Scarlet Flak s.

Defiance (Puxley)
Mars (Puxley)
Sir H. Havelock (Puxley)
Sportsman (Hedderley)

Purple Flakes.

Ascendant (May)
Earl Stamford (Elliott)
Mayor of Oldham (Hepworth)
Squire Trow (Jackson)

Rose Flakes.

Aglaia (May)
King John (May)
Poor Tom (May)
Nymph (Puxley)

PICOTEEES.

Red-edged.

Ada Mary (Smith)
Cedo Nulli (Headley)
Dr. Pittman (Turner)
Sametta (Smith)
Mrs. Norman (Norman)
Ne Plus Ultra (Headley)
Penelope (Turner)

Purple-edged.

Amy Robsart (Dodwell)
Bessie (Turner)
Eliza (Payne)

Purple-edged.

John Linton (Headley)
Rival Purple (Headley)
National (Holland)
Lord Nelson (Norman)

Rose and Scarlet-edged.

Alice (Hoyle)
Crystal (Smith)
Lady Greville (Turner)
Rev. A. Matthews (Holland)
Mrs. Barnard (Barnard)
Venus (Headley)

THE LITTLE MARKET-GARDENER;

OR,

HOW TO CULTIVATE AN ACRE OF LAND WHEN PROFIT IS THE CHIEF AIM, AND SHOWING HOW A FAMILY MAY BE SUPPORTED, AND SOMETHING PUT BY FOR A RAINY DAY.

POTATOES.

As soon as March comes in it is time to plant the second early Potatoes. The best sorts that I know of are, what we call in Shropshire, Knapsacks, Early Flourballs, Sportsmen, and Liverpool Merchants. Having purchased about fourteen pecks of the best sorts you can procure, mark out fourteen rods of the land that you have double dug, and plant the Potatoes 2 feet from row to row and about 8 inches or 9 inches from set to set in the row. You may plant them how you like—with spade, fork, or dibble, so that you do not plant them too deep. About 4 inches is deep enough for this time of year, and I believe this to be as good a time as any; and I have planted them at all times from October to July. In 1856 I obtained seventy-two bags to the acre from Potatoes

planted the 22nd of June. Do not plant large sets, or whole Potatoes, unless they are very small. If you can get them, small-sized Potatoes that will weigh about 1½ oz. each are the best, cut through the middle, minding to cut through the crown. If you have large Potatoes do not let the sets have more than one good eye each, there being nothing worse for the Potato produce than too much haulm. I intend writing a very long chapter upon Potato growing when I am not quite so busy. I will then tell you how I grew thirty-one pecks to the rod in 1859, and eighteen pecks to the rod upon the same land in 1860, some of the Potatoes weighing 1½ lb. each. I placed thirty Potatoes in my window that weighed 25 lbs., and that same land has had Potatoes on every year for twenty years.

LATE PEAS.

Any time in March, or the first week in April, mark out two rods of land, not too close to hedges, and dig about one ton of good manure into it. If you put them in with the spade, as I advised for the early Peas, let the rows be about 2 feet apart, and do not sow them too thick in the rows. I put mine in with a dibbling-iron, the same as is used for dibbling Horse Beans, and they do better in that way than any way I have ever seen. I make the rows about 14 inches apart, and the holes about 3 inches or 4 inches from each other, and about 2 inches or 3 inches deep, and drop the Peas one in each hole. The best sorts that I have grown are the *Bellamy's Early Green Marrow*, the *Champion of England*, and the *Victoria Marrow*.

PARSNIPS.

These should be sown as soon as possible in March. Let the land be double dug, the same as advised for Potatoes, not too close to trees or hedges: and if you have a good tank for the soapsuds and such sorts of slops, pour a good bucketful or two into the bottom of every trench. Mark out the land, about one rod, into four-foot-wide beds, and sow four rows upon each bed. Make the rows with the back of a rake just deep enough to cover the seeds, and sow a row of Radishes between each two rows and up each outside.

CARROTS.

Carrots may also be sown in March, if the land is not too stiff or wet; if it is they would be better sown about the middle or latter end of April, and then dig a good dressing of charred rubbish into the land, and mind to sow the seed as soon as the land is dug. If it is light or sandy land it does not matter how soon in March you sow them. Mark out one rod of land in the middle of the garden and away from trees; dig it deep and well, and if you put a good dressing of soot and dig it in, so much the better. Mark it out into three-foot-six-inches-wide beds, and sow the one half with Early Horn and the other half with any large sort you like best. I always find the Altringham to sell best. Sow five rows of Early Horn upon each bed; but four rows will be thick enough for the large sorts, and you may sow a row of Radishes between each two rows of the large ones, but not between the Early Horn.

ONIONS AND LEEKS.

Early in March mark out six rods and a half of land almost anywhere, so that it is not too much shaded. Put a good dressing of manure upon half a rod that is the farthest from the outside for the Leeks; dig it in deep and well, mark the ground out into three-foot-six-inches-wide beds, and sow the Leeks broadcast, and not too thick. Then dig the other six rods. Then take about three tons of very rotten manure (after you have marked it out into three-foot-six-inches-wide beds, and trod them down pretty firmly), and spread upon the beds regularly and evenly. Beat it down with the back of the spade; then sprinkle it over about half an inch, or 1 inch, thick with soil out of the walks. Mark out five rows upon each bed, and sow about 1 oz. of Onion seed to every 10 yards length of bed.

BROCCOLI, SAVOY, BORECOLE, AND CABBAGE PLANTS.

About the middle of March mark out three rods of your best warm borders to grow plants for sale—such as Broccoli, Borecole, Savoys, and Cabbages; dig it over, and sow the seeds as you go on, not too thickly. If the land is very poor, give it a good dressing of charred rubbish.

EARLY POTATOES.

About the last week in March will be time to plant your Walnut-leaved Kidney Potatoes. Plant them with the spade

about 18 inches from row to row, and about 7 inches or 8 inches from each other in the row, laying them carefully in the trench with their sprouts upwards, and mind not to break the sprouts off. All that are not nicely sprouted should be put on one side, and planted by themselves, to grow seed for another year.—THOS. JONES.

(To be continued.)

THE CENTRE BED OF A FLOWER GARDEN.

THE garden is about 110 feet by 60 feet, and enclosed on the east and south by a wall covered with Magnolias, &c.; on the north by a range of hothouse, conservatory and vinery; on the west by a wall with arches, through which the roseray and park beyond are seen. There are about forty-eight beds of various forms converging towards the centre, and advice is wanted as to whether the centre bed should be formed of three tiers, what is the best to form the outside of each tier, and how they should be planted to give the best effect through the summer? The bed may be 10 feet across each way. Or would a wooden or wire stand of lower and upper baskets be recommended in preference?—ROSA.

[The centre bed of so large a flower garden as yours, where forty-eight beds converge to the middle bed, must not be raised in two or three steps as you contemplate, but be as nearly flat as possible, say a ten-foot-in-diameter bed, to be raised 6 inches in the centre. Neither must it be planted with scarlet or yellow flowers, nor strong pink-coloured nor purple flowers, nor have any kind of standard plants in it; and the reason is that a tall raised centre, or a centre of very strong colours, would arrest the eye, or attract it too much to the prejudice of all the off-side beds viewed from any point all round it. The best way to plant your centre bed is, either to fill it with mixed flowers of all colours and edge it with variegated Alyssum, or with some variegated plant; or to plant it with one, two, or three kinds of variegated Geraniums in separate rounds, and to edge them with the dark blue *Lobelia speciosa*.]

ARRANGEMENT OF CROCUSES.

MANY of your readers besides myself will thank Mr. Beaton for his remarks on the Crocus. I have several beds done somewhat in the manner described, but I shall now be able to improve them. For instance: I had used in some cases the *Cloth of Gold* yellow, not being aware it was so much earlier than others. By the time the others are in their prime this is going off, and the effect is much impaired. Now that I know the bulbs can be moved without harm immediately after flowering, I shall alter this.

Nothing in the whole world of gardening delights me more than the pot culture of the early bulbs for in-door decoration. For a mere novice I think I am tolerably successful; but I have a difficulty. The Crocus bulbs always rot away after producing four or five little bulbs. The Tulips and Narcissi divide themselves into three or four, and neither these nor Crocuses will flower next year. Does this arise from bad management? Can it be obviated? I was surprised to learn there was a larger and finer Crocus than *Sir Walter Scott*; but I shall look forward to a trial of *Majestuse* next year. I had upwards of nine dozen blossoms from five bulbs of the *large yellows* in one pot. Is not this an unusual number? It was a blaze of beauty.—H. A.

[Of course, in planting lines or beds of mixed Crocuses, all the kinds should be in bloom at the same time. We cannot give an opinion as to the cause of the bulbs decaying until we know the nature of your soil and the mode of culture.]

I AM very much dissatisfied with the manner in which my gardener has planted the Crocuses, and I have seen with great delight a chapter on the "Arrangement of Crocuses;" but when I came to study it, it seems to me so confused that I can make nothing of it. You will be conferring a great boon on a great many of your readers if you would just give us a few intelligible hints. Mr. Beaton is generally sufficiently intelligible, but this seems to have been written in a hurry.—A SUBSCRIBER AND ADMIRER.

[Begin with the A, B, C of planting Crocuses, and let A stand for white and all shades of white, B for yellow, and C for purple,

and plant them thus—A, B, A, C, A—B, A, C, A—B, A, C, A. That is how to plant Queen Victoria (A), Dutch Large Yellow (B), and Prince Albert (C). There is a white on each side of the yellow and on each side of the purple, and that rule is to apply to any number of shades of all the Crocuses.

Sir Walter Scott is a white, with streaks in it: therefore call it A1, and plant it, like A Queen Victoria, at regular distances.

Majestense is a white, with more streaks than A1, call it A2, and plant it also at equal distances, as on each side of yellow and on each side of purple.

Marie d'Esosse is a white, with most streaks, call it A3, and plant it at equal distances in your row. If you have a large yellow and a small yellow, mark the latter B1; and if you have

three or four shades of purple call them all C's. The best of them is plain C, second best C1, third best C2, fourth best C3. See that all the four are at equal distances apart, each with a white on each side of it. Then, if your row is a mile long, you have double the number of whites in it, no kind is in two patches together, and every individual kind stands at regular distances along the line.]

PARISIAN MODE OF ROASTING APPLES.—Select the largest Apples; scoop out the core without cutting quite through; fill the hollow with butter and fine soft sugar; let them roast in a slow oven, and serve up with the syrup.

NEW PLANTS FROM JAPAN.

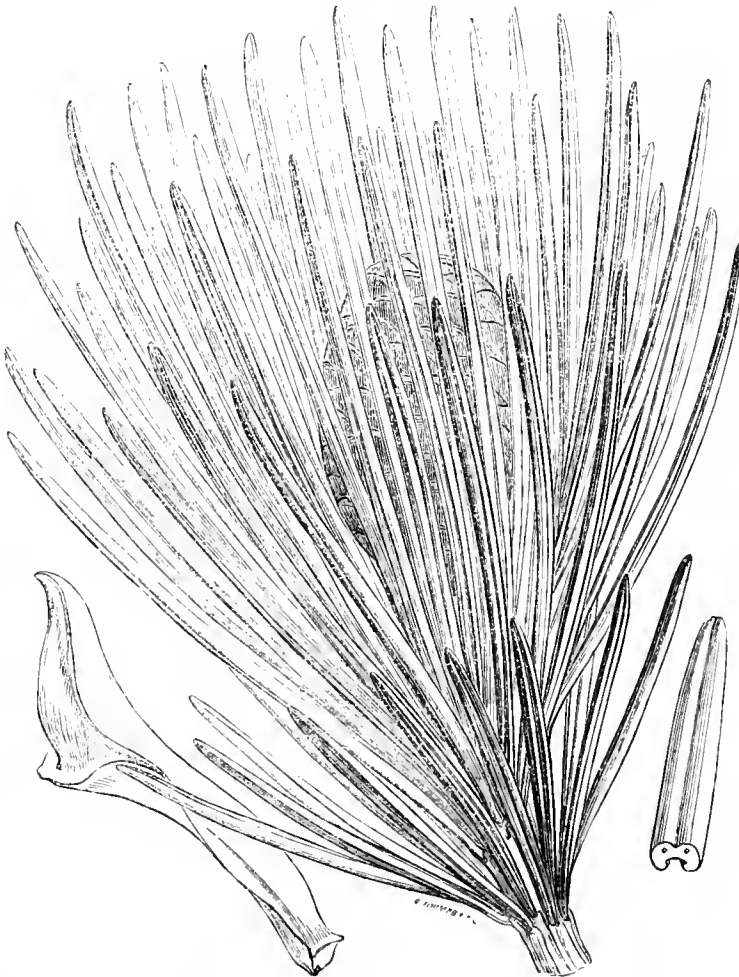
SCIADOPITYS VERTICILLATA—THE PARASOL FIR.

FOR nearly three hundred years the empire of Japan was till lately closed against all European nations except the Dutch, and it is consequently through them or their employes that any information has hitherto been acquired respecting this remarkable country, its people, and products. Had that communication been free and general, our knowledge would have been much more extensive; and we might, through a people so enterprising and intelligent as the Dutch, have become possessed of as complete a history of Japan as of any other region of the world. But even the Dutch enjoyed only a limited intercourse, their trading being confined exclusively to the harbour of Nagasaki. In consideration of this permission to trade with the Japanese, the Dutch were compelled to send an embassy annually to the Imperial Court at Yeddo; and it is to the scientific men who accompanied this embassy, that we are indebted for what little knowledge we have of the plants and natural products of the empire. Those who have written on the subject have generally been employed as physicians to the Dutch embassy. Kämpfer, a native of Westphalia, arrived at Nagasaki in that capacity in September, 1690, and, after residing two years, left in November, 1692. Thunberg, a Swede, pupil, and subsequently successor to the great Linnaeus, was also attached as physician to one of these embassies, and arrived at Nagasaki in 1775. To him we are indebted for a pretty extensive knowledge of the plants of Japan; but beyond dried specimens of the plants he describes in his "*Flora Japonica*," neither he nor Kämpfer contributed any-

thing to the living collections in European gardens. Dr. Siebold, also a physician, who has resided several years in Japan, has hitherto been the only European who has introduced living plants of Japan into Europe; among which some species of

Lilium and of *Clematis* are familiar examples.

The circumscribed limits to which the residence of all these men was confined, operated against their acquiring a more extensive knowledge of the country and its productions; and hence it is that some of the grandest of the trees and shrubs of Japan remained unknown except by reputation. It has therefore, been reserved to the enterprise of Mr. John Gould Veitch (son of Mr. J. Veitch, of the Exotic Nursery, Chelsea), a gentleman young in years, but mature in knowledge and experience of plants, to enjoy the well-merited reputation of being the first to introduce some of the finest trees of that remarkable country. To enable him to do this, Mr. J. G. Veitch has possessed advantages which no previous travellers ever had. Arriving in the country after the opening of several ports, and under the most influential patronage, and attached as he was, as botanist, to the consular establishment at Yeddo, he occupied a position of which he



Shoot and Young Cone of *Sciadopitys verticillata*, natural size. Drawn by Mr. Fitch from specimens sent home by Mr. J. G. Veitch.

was not slow to take every advantage, and as such he had the privilege to penetrate into the country and make excursions which were denied to all other Europeans except to such as were attached to the establishment. It was thus that he was permitted to join in the pilgrimage to Mount Fusi Yama, a privilege in which no European ever before participated.

Kämpfer and Thunberg were content to look upon it at a distance, and to listen with unsatiated curiosity to the legends which are associated with it, and the rapturous terms in which the natives describe it, which are to the effect, as Kämpfer says, that "poets cannot find words, nor painters skill and colours, sufficient to represent this mountain as they think it deserves." Mr. Veitch, however, ascended to its summit, and, profiting by the opportunity, possessed himself of the botanical riches by which he was surrounded in his route.

Among the discoveries made by Mr. J. G. Veitch, the subject we this day illustrate is one of peculiar interest, and is described by him as "*the finest tree in Japan*." It is *Seiadopitys verticillata*, the Parasol Fir of Japan, and is found as far north as Hakodadi, where the thermometer is often below zero; and there cannot, therefore, be a doubt, but that it will prove perfectly hardy, and capable of withstanding the frosts of our severest winters.

The tree attains the height of 150 feet to 180 feet, and is of an erect pyramidal growth with straight, wide-spreading branches, and thickly-set shoots, retaining its foliage to the ground. The leaves are from 2 inches to 4 inches long, and two lines broad, arranged in whorls of thirty or forty, and of a yellowish-green colour, forming on the extremity of the shoots a parasol of leaves 5 inches or 6 inches in diameter. As these parasols remain from three to four years green, there are always from three to four of them at intervals of an annual

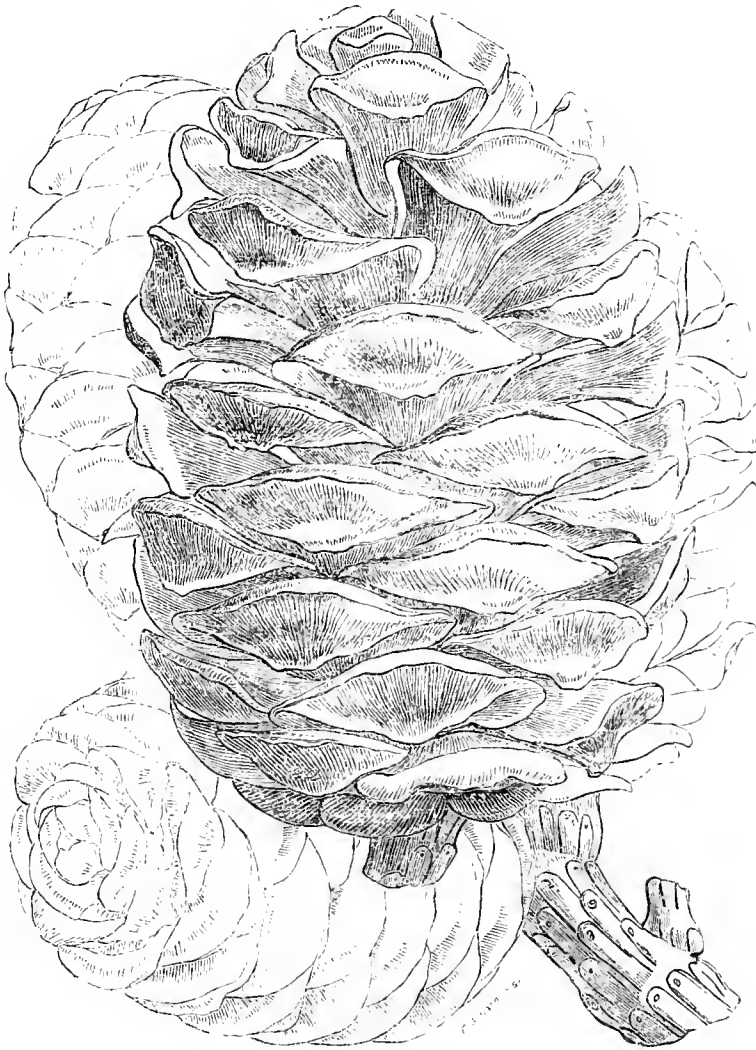
shoot on each branch. From the figures so skilfully drawn by our artist, Mr. Fitch, an opinion will be formed of the size and shape of the cones. The flowers of the tree are dioecious, and appear at the beginning of summer, and the females preserve

their cones till the spring following. These, from the specimens sent home, appear to be produced in clusters, and are not unlike those of *Pinus cembra*. Each scale bears on its superior surface seven seeds, which are of an elliptical shape, and are bordered with a membranous wing.

The Parasol Fir is one of the most beautiful Conifers of Japan, and one of the most rare. It is found extensively in the eastern parts of Nippon, on Mount Kôjisan, in the province of Kii. Mr. J. G. Veitch discovered it after his return from Fusi Yama, in the middle of September, 1860, growing in the neighbourhood of Kanagawa, and the seeds arrived in England on the 27th of November following; this being the first introduction of *Seiadopitys verticillata* into this country.

The tree is called by the Japanese *Kôja maki*, and by the Chinese *Kin sjo*, the latter signifying Golden Pine, from the yellowish-green colour of the leaves. The scientific name of the genus was established by Zuccarini, and is de-

rived from the Greek *skios*, a parasol, and *plus* a Fir tree, the leaves being arranged, as we have already stated, in the form of a parasol on the extremities of the shoots. It is our intention to continue notices of these new introductions.—H.



Cones of *Seiadopitys verticillata*, natural size, drawn by Mr. Fitch, from specimens sent home by Mr. J. G. Veitch.

HERTFORD NURSERIES.

MR. E. P. FRANCIS.

THE cross lines by rail taking up so much time, I stayed at Hertford for the night after leaving Sawbridgeworth, and called on our old friend Mr. Francis in the morning. The first appearance between these two famed nurseries presented plenty of the ideas of contrast and comparison. At Sawbridgeworth new glass houses have been so much in vogue, that a person who knew the place ten years ago would scarcely recognise it now. At Hertford, with the exception of a small vinery, the houses are much the same as they were twenty years ago. At Sawbridgeworth you are struck with great ranges of glass, the wood scarcely seen owing to the large squares of glass used, almost all being

20 inches by 12 inches. At Hertford you meet with what, ere long, will only be mementos of the past—houses formed with sliding sashes, heavy rafters, and the sash-bars thick between them, and supplied with glass of all sizes, and triangular and other shapes, reminding one of times when glass was a serious consideration. And yet a very slight survey was sufficient to show, that good workmanlike results are much more dependant on the genius of the workman than on the finest tools or the most perfect machinery. Without, perhaps, clearly intending it from the first, the bent of circumstances is leading Mr. Francis gradually to act more and more on the division-of-labour principle;

and this, no doubt, has rendered him more careless of building glass houses, and more bent on extending his grounds from a few acres, which I recollect them to have been, to a fair-sized farm which they are now threatening to become.

I found one house next the street, or road, well supplied with forced bulbs, Chinese Primulas in fine varieties and looking very gay and nice, independently of the little bits of glass in the front sashes. Another lean-to house was appropriated to Camellias opening their buds. Another was filled with Azaleas in fine specimen plants—from those in large pots and huge size, to beautiful compact little specimens in eight-inch pots or so, and splendidly set with buds, the points being all hard, which is more than can be said of Azaleas generally this season.

What surprised me most of all were the fine Rose plants in pots that have been so much admired at metropolitan exhibitions, just beginning to break their buds on the 8th of February, *squeezed thickly together in one of those dark lean-to houses*. More room would, ere long, have to be found for them by removing some to another similar-sized house; but at the thinnest, the plants even when in bloom must stand thickly together, and work must be done in these old-fashioned, but clean, tidy houses heated with old flues—the half of which work, if wanted from some of our modern gardeners with all the appliances of fine light houses, and all the improvements in heating by hot water, would lead them to indulge in no end of complaints and grumbling. It is all very well in large establishments to have a place for everything and everything in its place, and allow no other thing to be in that place; but that would not suit the purpose of the generality of our readers, who wish for great variety even in their small houses. I can well believe them, therefore, when they tell me, that when visiting gardens they pick up more useful hints from small well-kept ones than they generally do from princely establishments. Not but things may be managed as economically in the latter as the former, or even more so; but there is not, in general, the same conflict going on with little difficulties and the want of room, and, therefore, the same amount of sympathetic interest is not felt. A gentleman once summed up the qualifications he wanted in a gardener by saying, "In a word he must have given up, or be willing to discard, the word '*impossible*.' I hear it so often that I am heartily sick of it. I should even be satisfied with '*I'll try*;' but the prophets of impossibility have such a knack in proving their prophecies correct and true, that I will have none of them." I trust these fine Roses in pots will have as many admirers in the coming season as they have had in years past; but we must also see the little lean-to houses from which they come, would we be learners in the "*impossible*" philosophy. After all it is only the exemplification of the old proverb, "A good workman never stands still for the want of a tool;" in other words, men of great practical intelligence, instead of being controlled by circumstances, make even these circumstances, however awkward and obstinate, bend in subservience to their will.

On my last day visit to this nursery years ago, there was a fine collection of bedding plants, which was not such a common affair at that time as it is now. This is still made a prominent feature, though, perhaps, not to the same extent. Some small houses were filled with Calceolarias with names unknown to me. Verbenas in small pots just potted off, and which I should have liked to have had the pleasure of topping several times before May; and lots of fine little plants in small pots of Scarlet Geraniums, which would get large 60's or small 48's as soon as room could be made. Amongst other things I noticed some fine large store-pots of Petunias needing potting, and more particularly the Shrubland Rose—in my opinion as yet unsurpassed by any so-called improvements upon it. A number of our readers are slow to understand that a plant at 6d. or 1s. may be much cheaper than one at 3d. The Geraniums, &c., after such potting and attention must be fine plants before May; but I presume it will be of little use going or sending to Hertford for any, as one of the men told me that their bedding stuff was soon all cleared out, and that they could easily sell ten times as much if they had it.

A few years ago I drove through Hertford and the suburbs on a fine autumn day, and could not help noticing the pretty effect produced by bedding plants, alike on the lawn of the villa and the garden of the cottage. Some cottage homes were rendered very picturesque by having even the roofs covered with Vines, or with a great variety of the Vegetable Marrow and Gourd family, used young as a vegetable, and when full grown for pies and puddings; and then how gay the windows and the borders

looked with flowers! Instinctively we feel in such circumstances that there is a kinship in the love of the beautiful. Many of these industrious residents of the cottage homes of old England, raised above poverty on the one hand, and having no desire to enter the costly regions of an assumed unsatisfactory gentility on the other, would freely purchase for the gratification of the eye a few dozen of showy plants, could they get them in their own neighbourhood free from all uncertainty as to carriage and package charges, and, what is more important, the plants fresh and uninjured from such packing and journey. If what is now grown does pay—and we presume it does, or the practice would not have been continued so many years—and if the supply falls so short of the demand, I trust that our friend will increase his means and room for ministering to this gratification, so that his neighbours may have flower-beds in their little gardens, or, at least, flower-boxes in their windows, as well as China and Tea Roses against the walls of their houses.

It is not alone at Hertford, in this district, that the demand exceeds the supply. However, no man is to be blamed for loving that bridge the best that enables him with most comfort and safety to cross the stream. The open-air nursery has long been the principal thing with Mr. Francis. There is more variety than at Sawbridgeworth, but there is something in common, as respects the division-of-labour principle; but whilst Sawbridgeworth may be described as a manufactory of fruit trees and Roses, Hertford Nurseries may be chiefly considered a manufactory of Roses and fruit trees.

Fortunately a great many Roses, and trees, and shrubs had been sold in the autumn, and the very moving would save them greatly from the frost. The severe Christmas weather, however, had left its traces everywhere. The home ground lying low and close to a sluggish stream, I was surprised to find Peaches and Apricots comparatively little injured. A fine plot of Aucuba japonica was perfectly black, and the wood seemed killed to its base. Alaternuses, Phillyreas, and even evergreen Oaks were greatly injured, and most of them rendered unsaleable for the season. Cupressus funebris seemed killed outright, C. Lambertiana ditto, and many others more or less injured. A fine quarter of common Laurels seemed killed to the bottom. Mr. Francis sent out a great many the preceding year, fortunately; and these, from what I have seen of them, are all right, partly owing to the moving. Araucarias in many cases had their points burned red and drooping, whilst others were green; showing that in similar circumstances different trees of the same kind have different degrees of hardiness, either from the seeds being brought from different positions as to heat and cold, or from other causes as yet unexplained; and what grieved me more, perhaps, was a quarter of nice plants of Pinus insignis, either killed outright, or so injured as to spoil the sale for a year or two.

Though a great many standard Roses had stood the test, yet many of those budded last season had the bud destroyed; and great quantities of the tenderest were either killed or so injured as to be unfit to be sent out this season. The Teas and tender Roses budded low on the Manetti stock were much injured, as far as could be judged on the 8th of February; but Bourbons, Perpetuals, and Hybrids seemed comparatively safe and sound, partly owing to being budded so low, and also to a light skiff of snow on the ground. Had such a frost been expected, and a little earth put round the buds, most likely even the tenderest Teas would have escaped uninjured.

The distinctive feature of the place, however, is the prominence given to the Manetti stock, which Mr. Francis seems to have so thoroughly mastered, that, though many complaints have come in my way of Roses on this stock, I am not aware of a single complaint even from every variety of soil in the case of Roses supplied by him. He candidly states that it will never do for standards, as the stock will ultimately get so hard as to starve or throw out the bud; neither has he any faith in grafting on that stock for similar and other reasons; nor yet does he consider budding on dwarf stocks of any use, unless the bud is inserted close to the ground, so as to be partly covered or wholly covered when transplanted. Then the shoots of the favourite Rose will grow with a vigour unknown when placed on any other stock, or any Roses on their own roots. A regular systematic course is followed from the making of the cutting to its being budded and after-treatment. In a house combining the properties of a greenhouse and working-shed, nice and comfortable from a flue, a number of men before breakfast were dressing the cuttings of the previous year, removing all the roots and shoots up their stems, leaving only the lower ring of roots at the

bottom, and some buds at the top, to sustain free growth; and after breakfast these nice cleaned plants would be planted again in rows, and be budded as soon as the buds were ripe. Some fifty thousand of these cuttings were planted last season, and all would go through this treatment. I saw men going away after breakfast, carrying great buidles of fresh cuttings all of one length—about a foot, as near as I could guess from a distance—as part of the eighty thousand, or one hundred thousand that were intended to be planted this season. The foreman, who has been in the place something like a lifetime, might well say that though fifty thousand even was soon said, it was no joke to get even that number through one's hands. There are other minutiae on which, no doubt, some of the success of the system depends. To a benevolent man there is no slight recommendation in the fact, that in carrying it out the workmen need hardly ever in the cold months of the year have a wet coat, or be frosted out when food and fuel are most needed. A great part of the work in dressing the rooted cuttings and making fresh ones is done in inclement weather in winter, and favourable time selected for planting them.

The shrubs, as a whole, escaped the frost well, with the exception of those indicated; and the fruit trees, standards and dwarfs, were young and healthy. On the whole, the two hours spent only whetted my desire, if possible, to have a peep at these nurseries when all was a-growing and a-blowing.—R. FISH.

BRITISH FRUITS & POMOLOGICAL CLEANINGS.

BEURRÉ LEFÈVRE.

SYNONYME—*Beurré de Mortefontaine*.

THIS is not at all a new Pear, for it has been in cultivation for several years; but it is one of which very little is known, although it is to be found in almost all respectable nurseries. When we consider the immense number of varieties of Pears that are now cultivated, it is not to be wondered at that some which are of first-rate quality should escape notice in large collections, until, by some fortunate circumstance, attention is called to them. Such is the case with *Beurré Lefèvre*, of which I first took especial notice in 1859. In that year I found it to be one of the most delicious and refreshing-juiced Pears—not with melting or buttery flesh, but with that crisp, tender, water-ice consistency, which, though of a different character from the other, is in its way equally estimable.

Skin greenish-yellow on the shaded side, and very much covered with a crust of brown-olive russet. On the side next the sun the whole surface has a brownish-orange tinge showing through the thin russet coating, very much covered with large grey specks; in some parts there are broken streaks of red.

Eye very large and open, with long, spreading leaf-like segments, set in a pretty deep, uneven basin.

Stalk an inch long, fleshy at the base, and obliquely set on the surface of the fruit.

Flesh white, rather coarse-grained, half-melting, crisp, short, and very juicy; rather gritty at the core.

Juice very sweet and richly flavoured; with a strong and peculiar aroma, which is very agreeable.

A delicious Pear, ripe in the middle of October. It was raised by Messrs. Lefèvre, nurserymen, of Mortefontaine, near Paris, from whom I received it eighteen years ago.—H.

PEACHES ON A WALL AT CHRISTMAS, December 18th, 1860.—

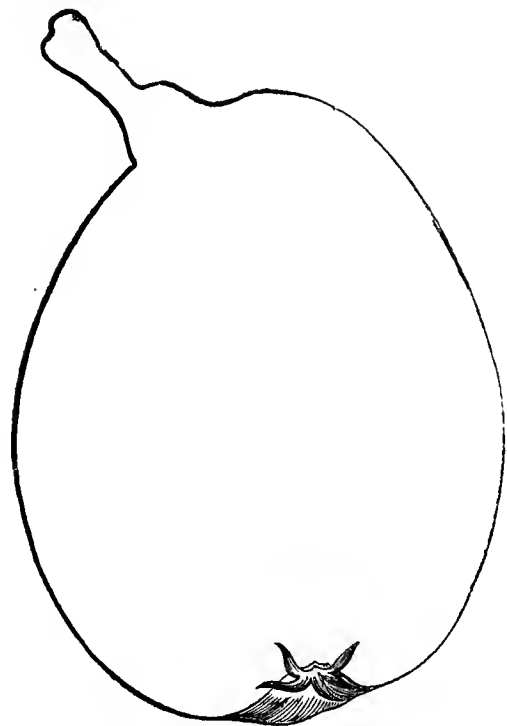
On going into my neighbour's garden to-day I saw what was to me a rare sight—a Peach tree trained to his wall covered with fine fruit of a rich golden yellow, with their sunny sides of a deep crimson, and its leaves perfectly green. Some garden-lights were placed against the wall; they had been there only a week. The fruit were soft and ripe, but perfectly flavourless. The variety is American, and called *Poole's Late Yellow*. In 1858 its fruit ripened in the middle of November, and were then of excellent flavour. The peculiarity of this late Peach, and also of the *Salway*, is its retaining its leaves fresh and green long after other kinds of Peaches have shed theirs, and thus bringing to maturity its late crop of fruit.—T. R.

THE EARLY MIRABELLE PLUM.—This very pretty little Plum is nearly as early as the *Jaune Hâtive*, ripening about the third week in July. It is round, of a bright golden yellow, spotted with red; parts freely from its very small stone, and is rich, sugary, and excellent. It is more dwarf and slender in its habit than the *Mirabelle Petite*, and will, doubtless, form a very pretty bush for the orchard-house, in which it will probably ripen in July, though the berries were not larger than peas.

INGRAM'S NEW GRAPE.—During a call we recently made at the nursery of Mr. Standish, of Bagshot, we saw a Vine-pit planted entirely with this new variety, where it is now being forced; and we were pleased to see that it gives great promise of being not only a very prolific and early sort, but that some of the bunches are already upwards of a foot in length and well shouldered.

ENGLISH RAISINS.—Some time towards the end of last September I received some Grapes packed in bran from a correspondent, who wished me to give him their names. There were two bunches—one of the *White Frontignan*, the other *Royal Muscadine*. A few Grapes were taken from each bunch to ascertain their names; the rest were replaced in the box and covered with the bran, which had apparently been sifted, as it was very coarse and free from particles of meal. The box was closed, and placed on a shelf in my library near the chimney. A good fire was kept in the room all the autumn and winter up to the present time, the box quite forgotten. To-day (March 28th), it was by chance opened, and the Grapes found to be perfectly sound, but like *green Raisins* and most delicious; the *Frontignan* flavour quite apparent in one sort, and the *Muscadine* flavour in the other. This is really a pleasant discovery; for how agreeable it will be to have our Grapes, or rather these home-grown Raisins, at Christmas, without the trouble of preserving them on the Vines, which, as we all know, requires much care and attention. It seems to me, that in a good Grape season, when Grapes on our walls are plentiful, we have nothing to do but to dry a quantity of bran, sift it thoroughly, and then place our Grapes in it in closed boxes, placing them in a dry warm cupboard or on a shelf near the chimney. Grapes from our vineries may, of course, be preserved in the same manner; but such large juicy sorts as the *Black Hamburgh* will, probably, require looking to if the experiment is tried with them. At any rate, the experiment is simple and inexpensive. In proposing bunches of Grapes to be preserved in bran, it occurs to me that the berries should be thinned, so as not to touch each other; the bran will then enclose each berry, and the gradual drying will preserve them effectually.—R.

A NEW VEGETABLE.—There has lately been exhibited at several meetings of the Royal Horticultural Society a new vegetable which promises to become a permanent institution



The fruit is inodorous, large, and somewhat oval.

among kitchen-garden crops. It is a Cabbage in the form of Brussels Sprouts. The stem is about a foot high, bearing on its summit a good-size-hearted Cabbage of the ordinary character; but the stem is covered with small Cabbages about the size of a small dessert Apple, and these when cooked form an excellent dish, partaking of the flavour of a nice summer Cabbage, and without the strong Savoy flavour which distinguishes the Brussels Sprouts. The merit of producing this variety is due to Mr. Wm. Melville, Dalmeny Park Gardens, near Edinburgh, and a very good name by which to distinguish it would be to call it *Dalmeny Sprouts*.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Asparagus, the beds should be spring-dressed immediately, if not yet done. *Beans*, earth up the advancing crops when the ground is moist. *Beet*, sow Green and White, for the stalks. *Borecole*, sow the main crop. *Broccoli*, sow a small quantity of all the principal sorts. *Brussels Sprouts*, sow for the main crop. *Cabbage*, if any of the autumn-planted ones are running to seed pull them up, and replace them with some from the autumn-sown bed. *Cauliflowers*, get the plants raised under glass hardened off, and pay every attention to those under hand-glasses to get them in as early as possible; for the destruction of the Broccoli will render them most valuable this season. *Celery*, sow seed for the late crops; those pricked out in frames to have plenty of air, to prevent elongation, and to be well supplied with water, in fine, dry weather. *Cucumbers*, earth up as they require it. Keep up a brisk heat in the bed, but beware of overheating it. As long as it is necessary to keep strong linings, a temperature-stick should be kept under each hill of plants. *Lettuce*, a few of the earliest may be tied up on a dry day; tie them as near the top as possible, to prevent the wet getting to the heart. *Radishes*, thin out advancing crops, and sow the Turnip-rooted kinds. *Sea-kale*, sow seed. If a new plantation is to be made it should be done without delay. The destruction of weeds and insects is now a matter of importance. All root weeds to be dug up; the Box-edgings to be clipped, if not done in the autumn; and the walks kept clean.

FLOWER GARDEN.

Continue to prune Roses. Roll walks, and fill up blanks in the flower-borders and artificial rockwork. Sow Auricula, Polyanthus, Ranunculus, and Pansy seed. Pot Carnations and Picotees in their blooming-pots, placing oyster-shells on the surface of the soil to prevent too rapid evaporation. Plant out Hollyhocks: these have a splendid effect when arranged with the tallest behind, and where contrast of colour has been carefully studied. Look over the beds planted with bulbs, and where necessary stir the surface soil, so as to give it a clean, neat, fresh appearance. If any alterations and planting still remain unfinished it should be completed without delay, as planting after this time is apt to suffer very severely in dry weather. Stir the surface soil of the seedling Pansies in beds, and give them a dressing of manure. Turn walks, and fresh coat with gravel. Plant Box-edgings. Sow hardy annuals of all sorts. Prune and tie all evergreen climbers, and roll and mow the lawn.

FRUIT GARDEN.

Disbud Peach and Apricot trees. It is best to go over the trees occasionally, removing a small portion each time.

STOVE.

Attend to the culture of each particular plant, and go on propagating, potting, and shifting. Encourage growth by syringing with clear water all over the leaves and every part of the house, filling it with vapour. Admit air on all favourable opportunities, but close up early to secure solar heat. When the blossoms of *Euphorbia jacquiniæiflora* fade, the plant to be cut down, and kept comparatively dry until it breaks; then to be repotted and encouraged to grow. If an increase of stock is required, now is the time to set about it. Young plants of *Allamanda*, *Clerodendrons*, *Torenia*s, and many other things, if encouraged with a brisk bottom heat and other favourable circumstances, will form nice-sized specimens in a few months.

GREENHOUSE AND CONSERVATORY.

Look very carefully to the watering at this critical season. Recently-potted plants to be kept close and syringed frequently, so as to maintain a rather humid atmosphere, and

apply water very sparingly until the growth of the plant indicates that it has taken to the fresh soil. Get a portion of the *Epacris* into a gentle heat as soon as they have sufficiently recruited their energies after blooming. Proceed as vigorously as possible with the repotting of such of the hardwooded plants as require it, so as to afford them every chance to make a vigorous growth. See that *Pelargoniums*, *Cinerarias*, and *Calceolarias* are allowed plenty of space, and that they are sufficiently supplied with water and kept perfectly clear of insects.

FORCING-PIT.

This department will soon be unnecessary, so far as the forcing of flowers is concerned, but it will become useful to give encouragement to some of the free-growing stove plants, which now require plenty of room. Some of the plants may also be removed from the dung-frames to this pit to make room for Balsams, Cockscumbs, Amaranths, and such other plants that are intended for the summer and autumn decoration of the greenhouse and conservatory.

FITS AND FRAMES.

Sow German and Ten-weeks Stocks in a cold frame, or in one that will soon cool down, and some German Asters on a slight heat. *Verbenas*, *Salvias*, &c. may still be propagated for the flower-beds and borders. The bedding plants to have all the air that can be safely given to gradually harden them off for turning out.

W. KEANE.

DOINGS OF THE LAST WEEK.

The work was chiefly of a routine character—digging, trenching, and pulverising the soil—when the weather would permit. Planted out more Ash-leaved and round Early Frame Potatoes. Finished planting out Peas and Broad Beans from boxes, protecting both with a few twigs of laurels, and staking the former as the work proceeded to prevent the ground being trampled on. Sowed various *Lettuce* seeds, as Carter's Giant Cos, Paris Cos, Blackseeded Brown Cos, and Neapolitan, and Hardy Hammer-smith Cabbage, only a few seeds of each, as the great secret of a thorough good supply is the sowing often. Sowed also Cauliflower, and for the main first crop of winter Greens, as Scotch Cabbaging Kale, Brussels Sprouts, Savoy, Broccoli, of which, with the exception of Snow's Early White, we grow little, the crops being so uncertain of late; Cottagers' Kale, Melville's Garnishing, which we suspect to be much the same as Variegated Kale, which either in its white or red appearance looks well on the table; also, a few Coleworts for early supply. These are sown quite early enough; but a second sowing will be made in a few weeks. Some calendars seem written more for the south of France than England as a whole. Pricked out Cabbages, Cauliflower, and Lettuces in an earth-pit, that were sown broadcast in a Potato-bed, to be protected with a few branches. Watered Potatoes in pots, now fit for use; also, Potatoes in beds, and Kidney Beans in pits, giving the latter manure water to prevent them exhausting themselves in bearing. Sowed more in boxes for transplanting. Watered *Cucumbers* also with warm water. The small plants in the frame heated by leaves and dung, though a fortnight behind those in the hot-water pit when planted, are now at least a week before them, if not a fortnight: fruit swelling and setting nicely. Both are healthy and luxuriant, never having shown a fly, &c., and I hope will not vex us as they did last year; for with every attention I could barely get enough to meet the demand, which I felt all the more, as usually even from a small space we used to have more than abundance. I mention the above fact about the Cucumbers to show that dung and leaves are not to be despised; and then what valuable heaps they become afterwards! I fully believe that a good supply secured, these beds will produce as fine crops as any hot-water apparatus, when growing is not commenced extra early. When Melons are grown in pots, we prefer hot water, and the plants to be on a trellis—the best place of all for first-rate fruit as to quality.

Nailed, when the weather was fine, and finishing pruning. Watered Vines in houses, also Peaches ditto. Made up a bed for three-light box, of the litter that came from Celery-beds and a few hot leaves, now in nice condition, for Melons. Potted off a few young Vines from buds just beginning to root, placing them singly in small pots. Prefer placing each bud with an inch of wood on each side in a small pot at once, but had no small pots to spare at the time. Planted out three lights more Cucumbers, two strong plants to a light.

Sowed more *Tender* and *Half-hardy Annuals*, and, among the latter, Ten-week Stocks, Zinnias, and China and German Asters, placing them in a mild heat. They are quite early enough, but they must stand a little rough treatment after they are fairly up. The 1st of April is generally a very fair time for sowing, if planting out does not take place until the 20th or the end of May. Zinnias being scarcely safe until the beginning of June, and before planting out, all should be pricked out from the seed-pan, and have nice roots before moving. In sowing, we fill either pots or boxes half full with rough material, generally riddings from beneath the potting-bench, then 2 inches of sandy loam, and then a little fine sandy loam, on which the seeds are sown, and some finer still with a little peat earth and silver sand for covering. The covering depends on the size of the seeds. For large seeds, such as the finer Lupins, from one-eighth to one-quarter of an inch. For such seeds as Cockscombs and the *Perilla nankinensis*, about one-twentieth of an inch. For such very small seeds as *Calceolaria*, *Lobelia speciosa*, and *Portulaca*s, the slightest sprinkling, and that generally of dry silver sand. For all small seeds the surface is first made smooth with a board, and the same smoothing is resorted to after the slight covering. Our rule is never to cover deeper than the thickness of the seeds. Deep covering gives many an honest seedsman a bad name. Another matter of importance is, for all such seeds placed in pots, &c., especially small seeds, to keep them shaded before the seedlings begin to appear. Those we sowed the other week and so treated are beginning to show, such as *Brachycome*, *Perilla*, &c., and these must have light and comparative coolness ere long to keep them from damping. The shading is accomplished by an old newspaper, or anything of that kind, being placed over the pots. We generally leave them about a week under the paper before watering, as the seeds imbibe moisture from the soil; and then when watering, instead of using a rose of any kind, I prefer flooding all the surface with water, by pouring the water against the sides of the pot, in a crock, or oyster-shell held in the hand. I do not give any theory, but I know in practice, that a pot thick with tiny seedlings will neither damp nor shank when so flooded, or sailed, all over in anything the same proportion as they will do when watered from a rose, however fine. The great remedies, however, against loss from these causes, is pricking out either singly or in patches, and giving more air.

Continued planting out *Calceolaria*s in earth-pits covered by calico, and commenced doing so with *Scarlet Geranium*s, merely forking the bed which seems rather wet, and making little trenches for the plants 6 inches apart, and placing sandy leaf mould immediately round the roots. These at planting time generally lift well. *Pelargoniums*, *Camellias*, *Azaleas*, &c., wanted more water, owing to a few sunny days. After a few dull days the sun, when powerful, tries the soft succulent leaves of *Cineraria*s and things of that kind; and when not dry, anything like flagging will be guarded against best by syringing the shelves and stages, keeping the plants on damp moss, and even sprinkling the underside of the leaves.—R. F.

TO ADVERTISERS.

We have to apologise to many of our friends whose advertisements are unavoidably excluded from this day's publication. We request that those who are desirous of taking advantage of the publicity which our pages afford, will send their advertisements as early in the week as possible, that the necessary arrangements may be made for their insertion.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.

NAMES OF BRITISH WILD FLOWERS (S. Devon).—No. 1, *Luzula campestris*, or Field Wood-Rush. No. 2, *Mercenialis perennis*, or Dog's Mercury, a female plant. You will see by an advertisement that we purpose publishing on the 1st of May the first Number of the cheapest illustrated work on British Wild Flowers ever offered to the public. We can safely say that the drawings are faithful portraits and beautifully coloured. We shall be particularly obliged by any one sending us good fresh specimens of rare British plants.

SEEDLING *CINERARIA* (J. Loose).—A good, stont-petaled flower, but there are many like it. It would not pay to send out.

RISE IN HOT-WATER PIPES (A Very Old Subscriber).—It will be no detriment whatever the rise of 18 inches in a length of 60 feet of the flow-pipe, and the same amount of fall in the return-pipe. Of course you will have the flow-pipe proceed from near the top of the boiler, and the return-pipe join it near the bottom. One four-inch pipe at the back, and one at the front, will be ample for early forcing of Cucumbers.

FOAKING BORDERS (J. Lady).—This is far better than digging them with a spade, as it injures less the roots of shrubs. Indeed, the fork has nearly superseded that old emblem of the gardener's occupation—the spade. A four-pronged fork for stiff soils, and a five-pronged fork for sandy soils, work them quite as thoroughly as the spade, and with the expenditure of much less strength from the workman.

QUERIES (Nottinghamensis).—It would occupy space uselessly to put in queries which are sufficiently indicated by their answers, or such queries as are only interesting to the inquirer. All others we do insert.

PLANTING A CIRCULAR ROSERY (M. M. P.).—We cannot relax from our rule, so many times repeated by us—we cannot plant strange places for any one. Our correspondents must tell us how they intend to plant, naming the plants, and specifying the spots on a plan where they propose to put them—we are then willing and ready to point out where the plan is wrong.

GROWING *ACHIMENES* (The Doctor).—Pans are better than cinoline-pots to grow *Achimenes* in when one has abundance of plants of them; and for a very small quantity of any scarce kind No. 48-pots are the best to start them in, then to give them a shift if they need it.

NAME OF *HYACINTH* (Peckham Subscriber).—It is almost impossible to tell from a single pip, but it is probably *Comte de la Costa* or *Regina Victoria*.

PHILEAS BUXIFOLIA—*LILIU GIGANTEUM* (An Old Subscriber).—The *Phileas* ought to be hardy at Colchester; but it is a good pot plant, and might be with the Chinese *Azaleas* till it blooms or is of a flowering age. It requires peat in the soil and much moisture. The offsets on the gigantic Lily do it no harm, and are no indications of its going to flower. The first notice of flowering is an upheaving in the centre, like that of the scarlet *Lobelia*s or *Campanula pyramidalis*, and will go on exactly in that manner. Some of ours have such an appearance already in the centre of the pots.

CYCLAMENS IN BOXES (H. B.).—Different varieties of *Cyclamen persicum* were meant only for one box, and if Mr. Beaton advised otherwise he made a mistake.

DWARF IVY BUSHES (C. P.).—You were quite explicit at first; we only imagined no one was so extravagant in these things as we have been, for we have been wishing for many years to possess an Ivy bush—upright as white currant bushes, and nearly of the same shape and size; and it is a comfort to know at last that the idea is not unique. We have struck cuttings of the arborescent Ivy, or the flowering shoots, which are the same thing, and we had them with their entire leaves on for half a dozen years; but they never got bigger all the while, and the first growth they made, away they went with shoots longer than ever and with lobed leaves. But now that you have struck the flint at the proper moment, there is a way of doing it, and of having quite a forest of round-headed Ivy trees, with trunks and branches, entire leaves, flowers for the bees, of which they are passionately fond, late in the autumn, and berries for all the thrush tribe in winter. Let the Ivy trees be as one row of Mr. Rivers' miniature-orchard, and let the whole row be lifted and transplanted every other year; and if that row does not produce twice as much fruit as its trees, let it be often transplanted till it does. Now is just the time to begin making Ivy trees. Procure some stont flowering branches from a ruin, or from near the bottom of the Ivy half strangling a tree, fix on a part of the branch as near the bottom as you can, to give you the more length of trunk after it is rooted; then, to cause it to root, cut off a ring of two inches in width of the bark, all but about the width of the fourth of an inch, and leave that narrow slip of bark to carry on the circulation; then get some sheets of gutta percha paper, or parchment, and form each of them into the shape in which grocers make their soft sugar parcels—the pointed end tie tightly a little below the ringed part, and let the open part of your paper be 9 inches or 10 inches wide, and deep enough to hold as much good, rich, sandy loam as would fill a No. 24-pot, pack the soil tightly round the ringed part, but not very tight above it, water it well and keep it well watered till next October, when it will be as full of roots as possible; and then cut it off from the old tree, and plant it carefully in a sheltered place, and see it is well staked. A layer of moss on the top of the soil in the gutta percha paper, and a little of the moss all round the wound in the bark will hasten the process of rooting. If the stem of Ivy is as thick as some we know, one would need half a bushel of mould, and two years to root it properly.

PROPAGATING VARIEGATED *ARABIS* (Idem).—The variegated *Arabis* partakes of a wide-spread principle among plants just coming into bloom, as it naturally does early in the spring. Plants under that principle do not readily root from cuttings freely on the eve of blooming, so that it is necessary to excite them to grow out of "flowering wood" ere the cuttings are made. In May it roots out of doors under a hand-glass freely, and so on till September. The old plants may be slipped to pieces in October, and every bit with or without a root grows. In January it should have three weeks' forcing before cuttings are made of it. But it deserves all the care and attention of the whole gardening strength of the British Islands. If it stands the influence of the sea-breeze under exposure, this is the best variegated plant for the whole of the Hebridean archipelago.

CUTTING BACK *WEIGELIA ROSEA* (R.).—Let it bloom, and cut it back afterwards; unless you are willing to cut it now, and sacrifice the flowers for this season, in order to get a more bushy plant well furnished from the bottom, and of a superior shape. This would be preferable.

PRUNING STANDARD ROSES (Idem).—All the very strong Roses are the better to be pruned thus late in the season, because, ere this time, their upper shoots are bounding away in full growth. By cutting off the upper half now, and a little more from the smaller shoots, so much of their pride, or over-strength, is got rid of, and the steady, sober, and self-ripened eyes below will come with less speed and more bloom, and make better wood for next pruning. It is now too late in the spring to remove Standard Roses, but of course they can be removed with a sacrifice until the end of April.

PELARGONIUMS FLOWERING PREMATURELY (*Inquirer*).—You either cut down your Pelargoniums which you need for a June show at least six weeks too soon last summer, or else you have kept them too warm since last October. Now, if you have a memorandum of the week and day on which you cut them, say three weeks of an ordinary summer will be equivalent to six weeks of such weather as we had in the cutting-down season of 1860: therefore, cut them back this season just three weeks later than you did in 1860, if you mean them for the same show. Then turn to the journal of your temperature in the Geranium-house since last September, and see how much the average of each week of temperature inside differs from the weekly average out of doors, for daily averages are of very small practical use. Then, if you have made any monthly memorandum on the looks and progress of the plants, that also will assist you in calculating your work for the future. Then make a monthly mean of your house temperature, and of the natural; also a mean of both temperatures for the four months succeeding October, and you will find the in-door temperature a good deal more than it need have been. This will give you a safe guide for next winter, which, if you follow, will enable you to beat every competitor who works on the hap-hazard plan. Meantime you must not stop such Pelargoniums, you must keep in a very dry place, and as cold as the season, without frost. We have seen many specimen plants put into deep cold frames this last March for next June shows. The cold frame was on purpose for retarding: a row of posts 5 feet out of the ground at back, another in front 3 feet or so, wall plates and rafters, and all the sides of boards made to hinge up and down, so as to cause the plants to be nearly as cold as if they were in the open air, and merely covered with glass. In very hot or sunny days they put mats over the glass. So you see you are not the only one who is out in his reckoning by this winter.

PURPLE ORACH (*Idem* and *J. H.*).—We stated that the Purple Orach is purple, or do you doubt our meaning, or prefer the *rubra* of botany, which may cover every morsel of red purple? It is not red, but is the finest purple, and would be inimitable purple if the leaves were of that satin texture which you see in *Cissus*, and such plants.

PROPAGATING SAXIFRAGA OPPOSITIFOLIA (*Idem*).—The best way to propagate the *Saxifraga oppositifolia* is to divide it into little bits like Lemon Thyme, and to plant the pieces a little deeper than the plant was set.

BOTANICAL TERMS (*A Beginner*).—You will find a copious glossary well illustrated with cuts in Dr. Lindley's *Elements of Botany*. We do not know of a better.

CONVERTING A PIT TO A GREENHOUSE (*T. Wallace*).—As the roof is fixed, you must have means for getting into the pit; and the comfort altogether would be increased if you had a door at the end, and a narrow path—say 15 inches or 18 inches wide—close to the front wall of the pit. Of course you could not then have a stage extending from the new front wall, until passing over the flue; but with that stage over where we conceive your pathway should be, we do not see how you are to get at your plants with a fixed roof. We think, by allowing your flue to remain as it is, and the front wall of the old pit as it is, you will have plenty of heat; only, if your pit is filled above the flue with leaves, dung or tan, you would require to make a few holes in the front wall opposite the flue—say four, a foot or so square, furnished with a sliding board to let heat out into the atmosphere of the pit. If the top of the flue is left exposed, that will not be needed. These little matters secured, we think you may calculate on doing all you propose well.

GAZANIA SPLENDENS (*Idem*).—As far as is known at present, it can only be depended upon to come true from cuttings.

VARIOUS (*A. B.*).—Spring cuttings of bedding plants should have a bottom heat of 80°, and a top heat by day of 66° or 70°, with 10° less at night, and free ventilation. Not knowing how you have treated *Eugenia Ugni*, we cannot tell why it sheds its blossom-buds. It may have been kept too cold, or something may be wrong at the roots. The knife must not be applied to either *Heaths* or *Epacris* until after they have bloomed.

POULTRY, BEE, AND HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

MAY 21st, 22nd, and 23rd. CHESTERFIELD AND SCARSDALE. *Hon. Sec.*, Mr. Thos. P. Wood, jun., Boythorpe House, near Chesterfield. Entries close May 1st.

MAY 22nd and 23rd. BEVERLEY. *Hon. Sec.*, H. Adams. Entries close May 4th.

JUNE 4th, 5th, 6th, and 7th. BATH AND WEST OF ENGLAND. *Steward*, S. Pitman Esq. Entries close May 1st.

JUNE 19th, 20th, and 21st. COALBROOKDALE. *Secs.*, J. B. Chune, and Henry Brocroft, Coalbrookdale.

JUNE 28th. DRIFFIELD. *Sec.*, Mr. R. Davison. Entries close June 22nd.

JUNE 28th and 29th. TAUNTON. *Sec.*, Mr. Charles Ballance. Entries close June 14th.

JULY 2nd and 3rd. BLACKPOOL. *Sec.*, Mr. E. Fowler, jun.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. *Sec.*, M. J. B. Lythall, 14, Temple Street. Entries close November 1st.

N.B.—Secretaries will oblige us by sending early copies of their lists.

DIARRHŒA IN FOWLS.

I HAVE a Spanish cock, which has a frothy discharge at the eyes and a sort of cough upon him. In the midst of his crowing he is generally interrupted by a sneeze or cough. On examining his throat I noticed a yellow-looking substance, which should not be there. My fowls generally are too much relaxed in their bowels, amounting at times to diarrhœa.

I feed on barley and wheat mixed, and barleymeal once a-day. My space is certainly limited, and is in the town confined within four walls; but I have a small grass run—say 20 yards square,

and I give greens and Swedish turnips regularly, and keep my places very clean, and well supplied with fine gravel and water. —A NEW SUBSCRIBER.

[Swedes very frequently cause diarrhœa in fowls, and they are not necessary where fowls have as good a grass run as yours. When any additional green food is required, you will find lettuce better than any other. Cabbage is not so good. You must purge your Spanish cock freely with castor oil, giving a table-spoonful every other day. If the fungus in the throat is small, touch it with caustic. If it is large, bathe it with vinegar and cold water by means of a large soft-topped feather. We would advise you to feed only on meal for a time.]

THE HENWIFE.*

"I THINK," says the authoress in her introduction, "I am entitled, without egregious vanity, to deem my experience worthy of some claim to attention, as, during the last four years, I have gained upwards of three hundred prizes in Scotland and England, and personally superintended the management of forty separate yards, in which have annually been hatched more than one thousand chickens.

"I began to breed poultry for amusement only, then for exhibition, and lastly, was glad to take the trouble to make it pay, and do not like my poultry-yard less because it is not a loss."

Now, this is just the person to write a book upon poultry management; and we assure our readers that we have read the 200 pages forming Mrs. Blair's volume, and that they are unmistakable evidence that she is not only possessed of the requisite knowledge, but that she knows how to impart it explicitly and pleasantly. Houses and yards, food, general treatment, hatching, chicken-rearing, exhibiting, diseases, fattening, description of various breeds, and a balance-sheet, are the various heads under which Mrs. Blair arranges the knowledge she has to impart.

We will give but one extract as an example of the sound information the work contains, and it is on a point too little attended to by poultry rearers:—

"The necessity of damping eggs was not at all understood by the old school, and yet it must be done if success in hatching is desired. Many complaints are made of eggs not hatching though there have been birds in each. This is entirely caused by the neglect of this precaution. Unless moistened, the inner membrane of the egg becomes so hard and dry, that the poor little chick cannot break through, and so perishes miserably. Before dying, its cry, like that of Stern's Stirling, probably has been, 'I can't get out, I can't get out.' Has slavery a more bitter draught than this?

"When a hen steals her nest in a hedge or clump of evergreens, she sits on the damp ground. She goes in search of food early in the day before the dew is off the grass, and returns to her nest with saturated feathers. To this fact is to be attributed the comparatively successful hatching of the eggs of this wild bird. To follow this as closely as possible, put a thick fresh-cut turf in the nest you are about to prepare for the reception of the sitting hen. Sprinkle a little sulphur over this, and spread over it straw in summer, hay in winter. I shall suppose that you have eggs ready for sitting. They should be thirteen in number, or at most fifteen, if set during warm weather. In winter, nine eggs are sufficient for the very largest hen.

"Before hatching your (it may be) valuable eggs, be certain that the hen is really broody. You may give her one or two worthless eggs as a trial; or, if you are anxious not to lose time, divide your sitting between two or more hens, and if one proves truant at the end of a few days, give all to another.

"By sitting several hens at the same time, you have the great advantage of being able to put all the chickens, as soon as they are hatched, under one, and of adding new comers to her flock. Eggs sometimes hatch irregularly, and unless some such system were established, the earliest-hatched chickens would die of starvation before the whole were brought out.

"I strongly deprecate the custom of removing chickens from the nest, and keeping them in baskets before the fire. There is no warmth so suited for them as that of the hen's body.

"After removing the empty shells from the nest, leave the little creatures with their mother undisturbed for twelve hours. When that time has elapsed, you may offer them food and water.

* *The Henwife*, her own Experience in her own Poultry-yard. By Mrs. Fergusson Blair. Edinburgh: T. C. Jack. London: Hamilton, Adams, and Co., and Office of "Journal of Horticulture," &c., 162, Fleet-street.

"If the egg has been chipped for some hours, and the chick does not make its appearance, a slight assistance may be given by enlarging the fracture with scissors, cutting up towards the large end of the egg—never down, or the loss of blood may prove fatal. When the chicken at last makes its way out, do not interfere with it, or attempt to feed it. Animal heat alone can restore it. If it survives the night, it may be considered safe. Weakness has caused the delay, and this has, probably, arisen from insufficient warmth."

The balance-sheet shows a profit of £24 7s. in the twelve months between February, 1860, and February, 1861; but we do not observe any allowance made for the cost of exhibiting. Does Mrs. Blair find that the prizes gained cover that cost? If not, the loss should be on the debit side; for if she had not acquired a name by exhibiting, she would not have sold poultry by auction for £148 15s. 6d., a sum appearing on the credit side.

The woodcuts are excellent, and the drawing of the coloured illustrations is for the most part good, except of that terrible exaggeration the Cochinchina hen; but let no one accept the colouring as correct.

CANARIES' FEET DISEASED.

MY Canaries have been affected in the course of February and this month with an epidemic inflammation in the feet and legs. Can you or any of your correspondents give me any information on the following points? 1, Whether the disease is known? 2, If known, what has been found to be the most safe and effectual treatment? 3, If not known, what is the probable cause in this instance? 4, What would probably be the best treatment?

The symptoms are at the commencement restlessness, and ruffling, sitting on one leg, &c., reddening of the whole limb, and swelling, but chiefly at the joints, soon perceptibly follows; and then the usual moping till amendment begins. Hitherto, no bird has died, but one or two are now sickening, and the cases seem likely to be severe. The food of the birds has been canary, rape, and a small proportion of hempseed, with groundsel till the affection began. After that, egg instead of groundsel, and a little saffron in the water. The birds were accustomed to take their bath in their cage, and it was thought that a chill was given by the damp sand adhering to their feet. Since the first appearance of the disease they have taken their bath outside their cage, as they have a daily flight about the room; but still the birds sicken.—R. S. V.

P.S.—I noticed a very large wasp here on the 5th inst. (March). Is not this unusually early?—R. S. V.

[I only know of two causes of diseased feet—one arises from dirt, and may be cured by the bath and cleanliness; and the other is caused by wool or the fine threads of silk or such substances becoming entangled about their feet and cutting down to the bone, where they are not easily seen or removed. These threads must be picked out, and the feet anointed with oil, and they will soon heal.—B. P. B.]

BEEES NOT WORKING—BEEES PLUNDERING THEIR NEIGHBOURS.

AN *Old Subscriber* is very anxious about a hive of bees in a straw hive. It is strong, full of bees, and well fed since September. All the winter it was kept with another hive on a wooden bee-stand, exposed to the east, but not sheltered in front. Both hives were working well but began to fight, and the straw hive was moved a few feet from the stand containing the other hive, and since the hive was moved the bees have not come out to work. They are alive but seem lazy. Could the queen have died? Do bees generally become quarrelsome when together?

[Endeavour to rouse your sluggish bees into activity by giving food on five days. Use the bottle as recommended by Mr. Woodbury, in page 42 of our last volume, if there is an aperture in the top of the hive. Should there be no aperture, or the bees refuse to appropriate the proffered food, inject a little with a syringe into the hive itself, through a hole formed by thrusting the pointed end of a thick wire between the straw bands near the top. If this fails to set the bees to work, and little or no pollen is collected, we should fear the queen is dead, a misfortune for which we know of no remedy at this season. A bee-house

9 feet long would contain three colonies without much danger from their close proximity; but all should be ranged on one shelf. Bees are less apt to quarrel when the stocks are at a distance from each other, but want of space generally prevents their being widely separated. The strong are always apt to prey upon the weak in an unpropitious season like the present. The entrance of the hive that was attacked should have been contracted as soon as fighting commenced, so as to admit the passage of only one bee at a time; and if this failed to put an end to the conflict, the bees should have been removed to a distance of not less than a mile and a half. As soon as fine weather had set both colonies vigorously to work, the transported hive might be restored to its place without risk of a renewal of the disturbance.]

BEE-HIVES AND THEIR APPURTENANCES.

ANY one commencing bee-keeping must be struck at the great contrariety that exists between writers on this subject, both as regards the material and form of hives and their system of management.

After perusing one author, and resolving to adopt the system so strenuously advocated, the novice is sadly perplexed, on taking up perhaps the very next work that may chance to fall in his way, to find that system controverted, and its opposite as strongly recommended; and after wading through, it may be, the greater part of the bee literature of our country, is landed in a perfect maze of bewilderment. Arriving at this stage, it must act as a soothing opiate to his perturbed feelings to open "Miner's American Bee-keeper's Manual," and there find, condemned *in toto*, the whole authors of the old world from the illustrious Huber downwards; the hives of his own fellow countrymen having a scant justice meted out to them, being described with such Yankeeisms as "take ins," "humbugs," &c., and following his reasoning that the bee remains the same through every age and country: consequently "every bee-hive in the United States should be of a certain size and shape," that after many years of close application he has made the grand discovery which is given forth as "Miner's Patent Equilateral Hive," so far as his readers are favoured with its description being neither more nor less than a twelve-inch-cube box. Our author is much "too cute" to give further details—these are only to be had on remitting him a couple of dollars. One almost fancies the delighted novice about to transmit the requisite sum to obtain this ne plus ultra, when in comes No. 611 of your valuable Journal. A glance at the contents shows the very thing he longs for—an article on "Bee-domiciles," the writer of which, without even once mentioning the great equilateral principle, after describing the hives of his own apiary, wishes to disabuse the apiarian mind, of what?—the fallacy that one hive can be superior to another! or to quote literally his own words, "That by no particular invention, contrivance, or theory, bees can be forced, as it were, to augment their sweets." This reasoning being subsequently complimented in your columns by no less an authority than "AN OLD APIARIAN," it is no wonder though the poor novice should be driven, as a last resort, to the purchase of some of those pretty expensive toys disposed of by parties as bee-hives, who surely know little of the subject, and into which the practical bee-keeper would never think of hiving a swarm.

That Miner may have found his equilateral-hive of a size suitable to the requirements of average swarms in the United States is possible enough; but it is simply absurd to argue that this size should be adopted in every case, be the swarm great or small. A small swarm hived in a roomy box must necessarily retain within it a greater number of workers to raise the temperature for comb-building, and, therefore, can spare fewer to go abroad foraging; this must materially affect their store at the end of the season, and contrast unfavourably with hives of smaller dimensions. As to large swarms, he admits having received communications from parties supplied, inquiring what they are to do with swarms his hives cannot contain. His advice in such cases is that the appearance of swarms at hiving time is fallacious; to place an inch block below each corner of the hive, and at the approach of the first cool weather they will draw within. Indeed, our author seems to consider those monster swarms which occasionally darken our apiaries, not as happy windfalls, but as monsters in the worst sense of the term; and goes on reasoning that swarms should consist of a certain number and no more; that "bees in a hive are exactly in a similar position to a body of mechanics in a workshop; that they must have a certain

room to labour in; and that all their labours are deranged by an excess of labourers!" Common sense, one would think, would naturally suggest to Mr. Miner, as a wise master tradesman, the propriety of extending his premises so as to afford his numerous and busy hands fair elbow room; but then farewell to the infallible size, and all the fine reasoning of this most amusingly egotistical of all bee-writers.

To take up the other extreme, or the any-sort-of-hive doctrine, the veriest tyro in bee-keeping knows that the mere possession of the best description of hive is not sufficient of itself to insure success; that he must people it with a strong colony, occupy a fair locality, and have some knowledge of management, before such can be looked for. What I hold is, other things being equal, there exists as wide a difference between some hives and their management contrasted with others, to accomplish for the practical bee-keeper his main end in view—viz., sending the finest honey first to market, as there would between one of our modern clippers and a bluff bowed old Dutchman in fetching home from China the first of the season's teas.

Who has not looked with pity on the congregated mass of bees clustering idly round the entrance of many a cottager's hive, it may be for weeks, at the very best part of the short honey season, while depriving hives in its immediate neighbourhood may be rapidly storing up the finest honey? I was once assured by a respectable party, on whose veracity I could rely, of his having, while the day was at the longest and the white clover in full bloom, weighed a set of his Stewarton-boxes containing a powerful colony in the morning early, and again at dusk, and found they had increased their gross weight by the almost incredible amount of 9½ lbs. in the single day. Or, take an illustration from my own experience. Some years ago, being desirous to test the cottager's with a more improved system side by side, I hived early in June a good prime swarm in a common straw hive; on the day following, another of nearly the same weight in a wooden hive, fitted with bars and slides and other improvements; they were of like cubic contents, and placed a few feet apart. The season being propitious, they wrought very diligently for the first four weeks, and young bees appeared much about the same time. They then both began to slacken their ardour, and block up the entrance, threatening swarming. To obviate this, I placed an eke below the straw hive—the plan pursued by cottagers, and on the wooden hive a super, drawing each end slide only; this had the desired effect in both cases, with this difference, that the inmates of the box went on with renewed vigour to the end of the season, the other in a very leisurely manner. The straw hive I could have sold for £1 to our parish honey dealer to run down its contents. From the box I took a super of beautiful comb entirely free from pollen or brood, weighing 20 lbs. nett; for this I could have realised 2s. per lb. (had I felt disposed to part with it), or £2, having my stock-hive to boot, which was worth to me another pound, as it stood over without a particle of feeding, and threw a swarm the following season nearly 1 lb. heavier than its more richly stored competitor, only one day later, or exactly a year and a day after each had been established respectively. Surely here was an "augmentation of sweets" not ascribable to any fortuitous circumstances, but solely to the hive; the management being up to the time of the threatened swarming much on a par in every respect.

The shortcoming in the one case is as obvious as the success in the other. The straw hive being wrought full of combs, and these stored with honey and brood, the inmates were compelled to lie idle and hang out. The eke prevented swarming by a timely supply of fresh air, and a little employment in extending their combs. This might add somewhat to the breeding space, but then storing was over with the exception of a little honey, as the queen's breeding relaxed towards the end of the season.

In the box-hive, on the contrary, the addition was afforded where most required; the detachment told off to take possession of the super at once eased the pressure on the stock; the honey gatherers plied all their energies to carry home to this cool receptacle the nectar abounding; the nurses busied themselves pulling the discoloured covers off their older preserves hard by,

* This singular old man (who, by the way, is almost as fond a lover of bees as was the great Huber himself), working fearlessly among them and very rarely stung, although labouring under the same infirmity. When in his prime he dealt in cattle, purchasing horses and cows guided solely as to age, size, and defects, by the same wonderful delicacy of touch that distinguishes his estimating the small though more irascible stock—being then, as now, *totally blind*. As a climax to the whole, in his later years he was more than suspected of systematically tampering with the game laws.

treating the youngsters to liberal supplies, keeping them at the same time in blissful ignorance of the nice white-covered sweets laid fast in the store closet up stairs (as thrifty housewives were then acting on the principle in larger domiciles); this gave an always-increasing area for fresh brood; hence the larger swarm from this hive the following season. Bees require no compulsion to augment their sweets; it is their delectation, the object of their lives—in short, their ruling passion. What they too often lack is but the opportunity. To the careful observer, it would appear the more they have to do the more they will do, with plenty of store room at command. Let but the golden moment arrive, be it a copious honey-dew or a change to the clover or the heath, how their energies are set on fire! with what a hurry-scurry do they pour forth! with what a too-busy-to-speak-to-you air they rush past—woe be to the luckless wight who at such a time gets in their way! how earnestly they toil—he must be an early riser who gets the start of them! and late in the gloaming, with what a done-up look do the last arrivals throw themselves on the landing-board and draw a long breath, before hurrying in past the wary sentinels.

Having already encroached far upon your valuable space, I must reserve till the next Number a detailed description of some of the "Bee-Hives and Appearances" having a place in the apiary of—A RENFELWSHIRE BEE-KEEPER.

(To be continued.)

OUR LETTER BOX.

HEN LAYING FROM PERCH (H. J. J.).—If your Brahma pullet will get upon the perch and deposit her eggs from thence, have your perch or perches made moveable, and take them away during the daytime. We will inquire about the cap forlop-eared Rabbits.

HENS NOT LAYING (An Old Subscriber, Dublin).—Fifty hens ought to give you more than nine eggs daily now. The food (one stone of potatoes and half a stone of steeped wheat daily) is more than enough for them, especially as they have a good run. Your hens, we think, must be old, or, if young, the eggs are taken either by themselves or other marauders.

HATCHING GAME BANTAMS.—(A Two-years' Subscriber).—You had better not have a brood until the end of May, or early in June. The chickens are tender. Turtle Doves, and, indeed, all the Columbaria, or Pigeon tribe, are good table birds.

HATCHING IN A STOVE (Inquirer).—You must keep the eggs at a steady temperature of about 104°. We should have them on a turf in a box, sprinkle them once daily with water, and covered with wool—a piece of sheep's skin, wool downwards. After all your trouble, you probably will not succeed; and if you do succeed in hatching them, then comes the redoubled trouble of rearing. Far better would it be to purchase a few old Cochins—China hens—they will set well, and are capital mothers. Your other query is answered in another column. No wonder that your Dorking cockerel, kept in a pen and fed on wheat, loses his feathers.

BLACKS IN FOWLS (A Constant Subscriber, Wigan).—Your fowls must be well treated with castor oil, a table-spoonful every other day. They should be fed twice every day with bread steeped in strong ale. When this fails to relieve, it is often necessary to bleed a little from the comb, and it should be done so that it shall not disfigure. So long as action is kept up by purgatives, any sort of stimulant may be beneficially given.

TASSELLED GAME FOWLS (W. P. Cooper).—There always has been a dislike to tassel Game as compared with others. Formerly there were the tassel and lark-crested. There are still some old fanciers who admire them when they see them, but, as a rule, they are not favourites. Mr. Daily treats of exhibition fowls and their treatment.

PLUMAGE OF GAME FOWLS (Gamester).—You can only change the colour of your birds by introducing stock possessing the qualities you lack. If, therefore, the fault is, that the colour does not exist, buy a cock where it is fully developed, and put him to your hens. If it exists, but lacks brilliancy, it is a question of cleanliness and condition. Feed well on ground oats and a few peas, and see that their roosting-places are kept clean. If the white you mention is a sort of fluff at the root of the feathers, and no part of the feathers themselves, it is immaterial; but if it is any part of the feather it is a disqualification. We hold that the red or copper saddle is quite correct in Duckwings, but not a red hackle. The last is a defect, and coupled with the fact that the hens are more like Black Reds than Duckwings, we should say they were cross-bred, and that some of the former blood was in them. We have hardly yet had Game Bantam hens quite perfect in colour as Duckwings; there is still some little latitude allowed to them, but none to the cocks.

FOOD FOR BARBARY Doves (Coo).—Wheat, barley, and hempseed; the latter sparingly. If sick, withhold the hemp, give bread and milk, and add any powerful bitter to the water. We were unable to obtain this information in time for last week.

BEES DESERTING THEIR HIVES (E. F.).—Bees sometimes leave their hives when in danger of starvation. Instead of waiting a sure death by famine, they appear to sally forth in the torrid hope of bettering their desperate condition. Liberal feeding last autumn would probably have saved all, or nearly all, your stocks, and may even now be necessary to preserve the two that still survive. Our correspondent has lost twenty-eight of thirty stocks.

WEEKLY CALENDAR.

Day of M th	Day of Week.	APRIL 9-15, 1861.	WEATHER NEAR LONDON IN 1860.					Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.							
				deg. deg.			m. h.	m. h.	m. h.		m. s.		
9	Tu	Orobus vernus.	29.603-29.557	48-33	W.	—	19 af 5	41 af 6	35 4	29	1	34	99
10	W	Trollius europæus.	29.971-29.665	50-20	N.W.	—	17 5	46 6	sets	●	1	17	100
11	Th	Columbines.	30.145-30.096	48-32	N.W.	—	15 5	47 6	39 a 8	1	1	1	101
12	F	Trilliums.	30.089-30.049	48-25	S.W.	.02	13 5	49 6	48 9	2	0	45	102
13	S	Cortusa Matthioli.	30.039-29.923	49-25	N.E.	.01	10 5	51 6	53 10	3	0	29	103
14	SUN	2 SUN. AF. EAS. PRS. BEATRICE	30.150-30.122	49-31	N.E.	.01	8 5	52 6	51 11	4	0	14	104
15	M	Dentaria bulbifera. [B. 1857.	30.217-30.153	55-39	N.E.	—	6 5	54 6	morn.	5	0	af. 1	105

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 55.3° and 35.7° respectively. The greatest heat, 73°, occurred on the 14th, in 1852; and the lowest cold, 22°, on the 13th in 1853. During the period 122 days were fine, and on 116 rain fell.

MY ORCHARD-HOUSE.



HAT spring-like and charming weather on this Good Friday morning! How delightful the temperature of my orchard-house! How thickly my Apricots have set their fruit! and how beautiful are the Peach and Nectarine trees, all in full bloom! The thermometer hanging in the shade in the centre of the house marks 68°, which is most enjoyable to my feelings, for I always reckon that a temperature ranging from 65° to 72° is perfect, when accompanied by fresh air which is now gently breathing against my face.

My house is span-roofed and 14 feet wide, with glass on each side and at the ends, so that it is remarkably light. I never remember to have enjoyed my orchard-house walkings and doings as I have done this season; for ever since the severe frost left us in January, its climate has been so dry, so calm, and so agreeably warm after an hour's sunshine, that I have always felt loath to leave it.

I have been very fortunate in my management, and it may be interesting to some of your readers unlearned in orchard-house culture to know how I have operated on my trees. Early in November I had them all top-dressed, gave each tree a gallon of water, placed all the pots close together, and covered their surfaces with refuse hay 1 foot thick. On that terrible Christmas morning I went into my house with a comfortable feeling, for I felt assured that my trees were safe. To my surprise I found the thermometer inside registering 26° of frost, outside 2° below zero. Every shoot was frozen hard. I almost feared the blossom-buds would be injured by such excessive cold, particularly as the shoots were not so hard and ripe after the cool, cloudy summer. As soon as the frost left, or rather about the end of January, I had all the trees syringed with the Gishurst Compound, as it had just come from the manufacturer, and, as my man said, "smelt powerful bad." I dissolved six ounces to the gallon of water, and had them syringed with it till every shoot was dripping. I allowed them to remain two or three hours to get partially dry, and then had them thoroughly syringed with pure water, which, to a certain extent, removed the unpleasant smell: (but Mr. Wilson, the inventor of the Gishurst Compound, must tell us of some agreeable disinfectant, for its stench is marvellous). Well, I presume my syringing killed not only the brown aphids, which is often so active in winter on the young shoots of Peach trees, but also its eggs; for whereas last year after a frost in December, 1859, nearly as severe as the memorable frost of last Christmas, my trees were more or less infested all the spring by this pest, I cannot now discover one; and they (the trees) are perfect beauties—bushes of promise, for I grow them in the bush form in thirteen-inch pots, and pinched in their young shoots all last summer.

In a small way I am a collector of varieties of Peaches and Nectarines, and have some fifty or sixty sorts. I

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wish I could impart to your readers the pleasure I derive from not only their fruit, but in studying the infinite diversities of their leaves and flowers. No two are exactly alike; and when the eye is to a certain extent educated, the slight yet well-marked variations are charming, and fill the mind with that gentle, happy feeling of admiration so conducive to its health, so soothing to the unquiet spirit, so calculated to fill the heart with thanks for this foretaste of the glories of spring.

Among Peach and Nectarine trees, some give flowers large and almost gorgeous in the colouring; some only those that are bright in colour, yet with petals comparatively small; and others again flowers so small and inconspicuous as scarcely to attract notice. I have amused myself with looking over my trees and taking notes of their blossoms. It has been with me a slight labour of love; to your readers the reading of such notes may, perhaps, be real labour; but they may pass it over, or you may not think them worthy of the labours of the press. But here they are:—

Peaches with large, bright-coloured flowers.

1. Pucelle de Malines.
2. Early Savoy.
3. Princess Marie.
4. Barrington.
5. Shanghai.
6. Acton Scot.
7. Early York.
8. Abec.
9. Pavie de Pomponne.
10. Cooledge's Favourite.
11. Grosse Mignonne.
12. Early Grosse Mignonne.

These are all most beautiful, particularly Nos. 5, 6, 8, 11, and 12, which when in full bloom are glorious objects.

Peaches with large pale flowers.

1. Noblesse.
2. Newington.
3. Early Anne.
4. Red Nutmeg.
5. Malta.
6. Madeleine de Courson.

No. 6 is the Royal George of France, being cultivated there to the same extent as the Royal George is in England, and reckoned one of their first-rate kinds.

Peaches with small pink flowers.

1. Gregory's Late.
2. Early Tillotson.
3. Bellegarde (French Ga-lande).
4. Royal George.
5. Small Mignonne.
6. Late Admirable.
7. Catherine.
8. Chancellor.
9. Desse Tardive.
10. Walburton Admirable.
11. Royal Charlotte.
12. Angers Large Purple.
13. George IV.
14. Belle de Doué.
15. Monstreuse de Doué.
16. Belle de la Croix.
17. Salway.
18. Vineuse.
19. Violette Hâtive (English Ga-lande).
20. Boudin.
21. Crawford's Early.

Nos. 3, 11, 17, 18, and 19, have flowers of a very deep pink, and are very conspicuous and pretty. Many of the others in this list have very small, inconspicuous petals, some of them tipped with green; but no two are alike.

Nectarines with large bright flowers.

1. Newington.
2. Early Newington.
3. Pitmaston Orange.
4. Rivers' Orange.
5. Hardwicke.
6. Stanwick.

Nos. 3 and 4 are the most showy and beautiful of all, No. 654.—VOL. XXVI., OLD SERIES.

their flowers of the largest size, and of that bright rose colour always so agreeable.

Nectarines with large pale flowers.

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|------------|-----------------------|
| 1. Bowden. | 3. White. |
| 2. Roman. | 4. Fairchild's Early. |

Nectarines with small pink flowers.

- | | |
|------------------|----------------------|
| 1. Murry. | 5. Oldaker's Black. |
| 2. Late Melting. | 6. Balgowan. |
| 3. Elruge. | 7. Due du Tellier's. |
| 4. Impératrice. | 8. Downton. |

These, like the small-flowered Peaches, are very diverse in the size and colour of their petals, but Nos. 3, 6, and 8 are very bright and pretty.

When one considers that all this beauty is to be followed by fruit equally or more beautiful, it need not excite surprise that my love for orchard-house culture increases annually. Plums, Cherries, Apples, and Pears all have blossoms more or less varied; and when I have built separate houses for these fruits, which I hope one day to be able to do, I may give you a few more notes. I have felt much regret to see my friends, the bees, so weak and so chary in their visits. In most seasons there is one continuous hum; but not so this year. My bee-keeping neighbour, "Old Jack," tells me that his are nearly all dead: those are, or were, in common hives with the usual straw caps.—*AMICUS.*

RECENT SEARCHES FOR TRUE CINCHONA PLANTS.

BEING desirous of seeing the decoration of the hothouses for the million at Kew, and the effects of the frost on the vast variety of out-of-door plants there, I called about the middle of March.

As I got the length of the long succulent-house Sir William Hooker and Mr. Smith, the Curator, met me, both improving in appearance as they advance in years. And I am again indebted to their good natures for an opportunity of seeing every move in the place, accompanied by the heads of the separate departments to explain everything I wanted to know about.

The Orchid-houses, the new Cinchona-house, and some other places are now kept private, as the constant jarring of doors the year round is most prejudicial to that high style of cultivation in which all the rest of the house plants at Kew are seen. After taking particular notes of all the plants they force for decorating the show-house, of all the climbers, and all the plants which come naturally in flower in March—but above all, after selecting my own choice of kinds from their vast collection of Acacias kept, purposely to save room, in the smallest pots they will thrive in—I had more to do than I could spin in one week, and I thought of proceeding no further than the Acacias, and going a second time; but my guide, a good-humoured-looking man, invited me to see their newest house on account of the new way of heating it for bottom heat.

It is a very long house, in two divisions, and marked "private." I recollect seeing it in progress last autumn, and could see there was something extra to be tried, on account of the quantity of piping and the ways they were laid, and sure enough there was. I only wish you could have seen the writer on stepping into that house.

Well, the sight upset all my plans, and my flowers must now give way to doctor's stuff—to the highest department of the operative chemist, and for the use and profit of all others who feel the pulse of life.

I now recollect that when I was at Kew in the autumn there was a rumour among the young gardeners about a friend of mine, which I was sorry to hear, to the effect that he, my friend, had proceeded on false premises, and become embroiled with the Indian Government in London.

They, the Indian Government, resolved to strive to obtain the trees which produce the tonic barks of commerce; they wanted Bark trees—the trees which produce Jesuits' Bark, or Peruvian Bark—of which they make Quinine and other doctor's stuff.

These trees occupy thirty or thirty-two parallels of latitude in Peru, and to the north of it as far as Loxa. They range high up in the mountains far from the coast, and the same kind differs so much at different elevations, as our wall ivy does from flower-

ing ivy with its plain leaves, so that botanists who had to name them from dried specimens made a great confusion of species, which confusion is not yet got rid of.

Well, a collector from this country, to find out the best kinds of Bark trees, must not trust to his botany so much as to the practical experience of the barkers out there, who make a living by felling the trees, and harvesting the bark, and getting it to the coast—processes which last, more or less, from April to November. The Council of the Royal Horticultural Society, since they lost Mr. Douglas, held the opinion that a collector for South America would need to speak in the foreign tongues to get on at all, and would never trust any of us gardeners with such a mission to these regions. Now, this was the very leaf out of our books without our leave, which brought my friend, and the friends of India to the midst of the jungle. They sent out a foreigner who could talk about Cascarillas and Cortexes of all shades of colours, and all the rest of it. His name was ominous, too, being Markham. Mark every turn of the way from his office in London to Calisaya, the southern limits of Cinchonas—for that is the book name for these Bark trees; and one of the best kinds of Bark trees is named Calisaya, after the place where it is found. Mr. Markham was allowed a practical gardener, Mr. Weir, to carry his bag, and set his tent, if he had one. He was not long in filling his cases, and in bringing them over to Southampton, on their way to India by the Red Sea, green as Chives. Here my friend got scent of them, and he told the rest of us that Mr. Markham's trees were done as they do the bacon in Ireland, first killed and then cured; killed by a vertical sun in getting over the mountain passes to the coast, and cured with the salt mud of the nearest estuary, and if he had stopped there no harm could have come of it, for truth only was told us.

I once had a similar case. A number of boxes of Mexican fine-leaved plants were lying packed in Vera Cruz, under the French blockade, 1838, for two years and five months altogether, yet some of the plants were as green as grass; and a good judge of such things, Mr. Tait, of Sloane Street Nursery, reported them safe and sound, although they must have been dead over two years, and I was not surprised to hear that Mr. Markham was deceived in his collection. If he had, therefore, been silent till he reached India with them, he might have put the blame on the scorching heat over the Red Sea. But he did not remain silent, and my friend fell into a grievous error, and accused the India House people of squandering the public money in this expedition, without knowing the other side of the question—namely, without knowing that Mr. Markham had two strings to his bow, that he did not value his cargo of trees so much as the seeds of the same kind, which he ordered Mr. Pritchett, who is acquainted in the craft out there, to gather and send after him to Kew as soon as possible. This Mr. Pritchett found no difficulty in doing, and a large assortment of seeds of the various and best kinds of Cinchonas reached Kew on last Lord Mayor's day; and if all the seedlings of Cinchonas which I could not number at Kew, were sold now at five farthings a-piece, the proceeds would cover the cost of the Markham expedition, and leave something on hand for the relief fund for the famine in India.

Forthwith the Council of the Royal Horticultural Society advertised for a plant collector who could talk in the Spanish tongue, or in the language of Portugal, or both, and odds were soon staked on both sides of the race for Cinchonas.

The advertisements did not take, however, but they opened the eyes of Sir Charles Wood and his India Board to the perils of their progress for procuring tonics for the Emperor of China and his people; and a second expedition, on the true English model, was soon on its way to the Cinchona country.

The practical gardener who was known to possess the most needful qualities for a traveller for plants in foreign parts was sought out and soon found. We have such gardeners by the dozen in London itself. The authorities at Kew were entrusted to make the selection, and they fixed on Mr. Cross, one of their own recent pupils. You will certainly smile when I tell you of the qualities on which Mr. Cross's fitness was founded—that he was canny enough to know the value of the practical application of pluck on the instant. This quality Mr. Cross was presumed fairly to possess, as the lineal descendant of the very man who saved the life of Bailie Nicol Jarvie, the Glasgow magistrate, by cutting off the tails of his coat, from which the worthy functionary was dangling over a precipice from the boughs of a thorny tree in the pass above Aberfoil. I have

seen that application of pluck more than once on the right-hand side of the pass from Prince's Street to Holyrood, in Edinburgh, but I never could understand how it was done. Mr. Cross did understand it, however, and that will immortalise his name as the most successful collector of plants on record.

Mr. Cross left with letters of introduction to Mr. Spence, an English gentleman who has been out there for many years, and whose name is well known among naturalists in this country. After consulting with Mr. Spence, he engaged a man Friday, and set off to the hills, cleared a piece of ground for an experimental garden up in the forest, had a rumpus with a party of volunteers behind a stockade made on purpose to impede his mission through jealousy of trade secrets, which throw difficulties in the way of travellers, such as persons unacquainted with the Bark trade can hardly conceive. However, Mr. Cross and his man Friday surrounded them Aberfoyle fashion, made friends of them, and they fished him no more.

But the manner in which he botanised for the best species of Cinchonas is the best chapter in the whole expedition. Friday could dig, rake, pick off stones, and root-weed, and manage to water plants by this time if he had them; but that was the difficulty. There was no end of plants, but a great number of them are useless, except for the purpose of adulteration. The practice is to fell the trees, and cut as low as the crown of the roots, the very bottom yielding the best bark. This causes suckers and suckering-stools all over the forests that are frequented by bark strippers, who go singly or in gangs according to their numbers, and there is a major domo to receive the daily supply of bark from so many gangs, and see to the proper drying of it. The major domo knows the real value and the foreign quotations for the bark of every species which grows within the limits of his boundaries. His botany beats ours, small as pulvis quinquina, and his first-born daughter knows more than he—knows that his own men cheat him sometimes with inferior kinds of bark, more easily got at than the very best, which is more often on the highest and most inaccessible places in the ravines and mountain sides—knows also they must not come it so in her department.

Now, besides the damsel being fair, and setting aside the luxury of playing the gallant in the wilderness, a leaf out of the book of the daughter of the major domo would be of more value to Mr. Cross at that moment than all the writings on the Cinchonas from the days of La Condamine to those of Weddell, the first and all but the last, who wrote upon the subject. So Mr. Cross made up to the damsel and proved the fact (which had no need of proof, however), that the language of Nature, fresh from the heart and soft from the eye, beats all your foreign tongues to cloves and ribbons; and Mr. Cross had no want from that time of best Bark stools to select from—that you may depend upon.

Friday, too, took up the spirit of the thing, being kindly treated by massa and missa alike. The experimental garden was soon full, and the watering incessant. So many of the suckers came up as Irish cuttings are described—full of roots and flakes of soil, and so many without roots, but with recent wounds and the disposition to root induced by the felling of the tree, were fit subjects for experimental work. They did root, and between the two sets of cuttings there were enough.

Mr. Cross, however, like Mr. Markham, looked after the seeds of the proper kinds, sent them to Kew, and Kew sent some of them to all the foreign stations with which exchanges are made, and which had the right climate for them. The rest went to swell the seedlings which I could not number in the new Cinchona-house at Kew.

At the end of ten months Mr. Cross was back to Kew with six hundred plants fresh as when they left the Experimental at Huancoco. They were in fifteen cases, and from 9 inches to 2 feet long—such young stuff as most nurseries might be proud of sending out. They were all unpacked, aired, and tended for ten days or a fortnight; then repacked, and he was off with them down the Red Sea to India, by the time of my visit, and I could not help regretting that any friend of mind, or anybody connected with the reminiscences of Chiswick, should have founded a cause for ill will on these, the most complete, and the most likely to pay of all the trials of the kind that have been made in my days.

My reading on Cinchonas furnishes me no later dates than 1857, and yet I found a new species named at Kew, at least new to me and my books, in the "Materia Medica" (fourth edition, 1857), by Professor Pereira. The books and memoirs without

end that have been written about Cinchonas, are condensed into the smallest space, and that is the best digest of them, that I have seen. But this new accession of living species, and the fresh specimens at Kew from the aforesaid expeditions, will soon put the question on a new footing. Depend upon it, before ten years are over your head the Cinchonas will be good trade plants in the London nurseries, and will be ever and constantly in demand for exportation, and no one can say now but the basin of the Mediterranean may not compete yet with India for Quinine Bark.

It is only in hilly countries that the Bark comes to perfection. Pöppig, one of the best authorities on the subject, relates that many speculating merchants have been ruined in Peru by purchases of lowland Bark. The best Bark is found, according to Friday's friends, on mountain-tops, and on single trees growing in the coldest and most exposed elevations. The same kinds of trees grow low in the mountain-valleys, and in some parts low nearer the coast; but the bark from such situations is of no value except for adulteration. The kinds or species of Cinchonas from which such quantities of seeds were sent to Kew are Cinchona Condaminea, C. calisaya, C. nitida, and two varieties of micrantha—all well-known old species for producing the best Barks of commerce, and a new one called succi-rubra, and of this alone there are thirty or forty thousand plants pricked off! The seed-bed was made as for sowing Rhododendrons, to be sown broadcast along the front of the storehouse and over the hot-water-pipe; and it was 17 yards long, the whole length was sown broadcast, and the seedlings came up thick as grass. There is no end to them, and succi-rubra is believed to be the best of them all; but Condaminea, micrantha, and calisaya were said from the first to have been the best. Condaminea is that which furnishes the pale Bark of English commerce; and Humboldt says this is the fine Uritucinga Bark originally seen by La Condamine, after whom it is named. Micrantha is the favourite Bark of the people of the country, who call it Casca-rilla fina, or the finest Bark. Nitida has the disadvantage of one name to two kinds of plants; but the nitida brought to Kew is the lanceifolia of De Cudolle, who makes nitida, officinalis, lanceolata, glabra, and angustifolia all synonyms of lanceifolia. It furnishes the orange-coloured Bark, and, next to Condaminea, is reckoned the best of all the species. Calisaya is said to be the source of the true royal yellow Bark, the China regia vera of English commerce. What may be the value or virtue of succi-rubra I never heard. But the whole subject is being recast just now; and a splendid folio work on these Cinchonas is in the press, under the most practical hands—one of the first firms in London for grinding the Barks, and the ablest heads in botany, who can now obtain fresh specimens of all the kinds if they need them almost by return of post.

D. BEATON.

REPORT ON SCARLET AND OTHER BEDDING PELARGONIUMS,

GROWN AT CHISWICK IN 1860.

By THOMAS MOORE, F.L.S., F.R.H.S., Secretary to the Flora Committee.

THE season of 1860 having proved unfavourable to these plants, it has been determined to renew the trial of them in the present season, and, as far as it can be done, to prove them also under pot culture. The brief particulars noted concerning them, and which embody the opinion pronounced by the Committee, though influenced to some extent by an exceptional season, may, nevertheless, be worth recording. They are to be understood as applying to the varieties as grown in the open air, and in many cases are derived from single plants.

The following is a summary of the varieties which the Committee adjudged to be the most desirable for cultivation:—

Series I.—PLAIN-LEAVED SCARLET PELARGONIUMS.

§ 1. *Flowers scarlet*:—Frogmore Improved, and Punch. Defiance and Wellington Hero, in addition, were commended for pot culture and for training up conservatory pillars.

§ 2. *Flowers cerise*:—Beauté de Meldeise, Lady Middleton, Le Titién.

§ 3. *Flowers rose-pink*:—Christina, Rose Queen.

§ 4. *Flowers white*:—The only variety of this colour was considered inferior.

Series II.—HORSESHOE-LEAVED SCARLET PELARGONIUMS.

§ 1. *Flowers scarlet*:—Baron Hügel, Captivation, Liliput,

Martin Gireau, Queen of England, Scarlet Perfection. Bishopstowe, Conway's Royalist, and New Globe were selected as good secondary sorts; while Amazon, British Flag, Compactum, and Richmond Gem were commended for pot culture or pillars.

§ 2. *Flowers cerise*.—François Chardine, Mons. Martin, Rubens, and Sheen Rival; and for pot culture, Paul Labbé.

§ 3. *Flowers salmon or flesh-colour*.—Prince Louise of Hesse; and for pot culture, Aurora and Blackheath Beauty.

§ 4. *Flowers rose-pink*.—None of the varieties in this group were considered of first-rate character.

§ 5. *Flowers blush with pink centre*.—Henri de Beaudot.

§ 6. *Flowers white*.—Madame Vaucher, and Nivea floribunda.

Series III.—NOSEGAY PELARGONIUMS.

These all have zonate leaves. The best sorts were Crystal Palace, Imperial Crimson, Pink Nosegay, and Red Nosegay. Of good secondary sorts, of larger growth, there were:—Bishopstowe Nosegay, Purple Nosegay, and Salmon Nosegay.

Series IV.—IVY-LEAVED PELARGONIUMS.

These were all considered to be useful bedding plants for various purposes.

Series V.—VARIEGATED-LEAVED PELARGONIUMS.

§ 1. *Leaves golden-edged*.—Golden Chain and Lady Cottenham were pronounced to be useful varieties.

§ 2. *Leaves silver or cream-edged*.—Of the scarlet-flowered sorts: Annie, Alma, Bijou, Burning Bush, Countess of Warwick, Julia, Perfection, Scintillatum; and for pot culture, Picturatum. Of those with cerise scarlet or rosy-tinted blossoms: Flower of the Day and Flower of Spring, both first-class sorts. Besides the foregoing, Lilac Variegated and St. Clair, both with pink flowers, were considered useful varieties of secondary rank.

The varieties having the whitest-edged foliage were:—Alma, Bijou, Jane, Mrs. Lenox, Mountain of Light, Mountain of Snow, and Perfection.

Series VI.—HYBRID BEDDING PELARGONIUMS.

The varieties of this group did not succeed as bedding plants in 1860.—(*Proceedings of the Royal Horticultural Society.*)

GROWING SPECIMEN PELARGONIUMS.

(Continued from page 3.)

TRAINING.—The plants, after being potted and properly treated by gentle waterings and syringing after a warm sunny day, will grow rapidly and strongly. Such being the case, the training to form a specimen should be commenced forthwith. The safest plan is to place slender sticks, painted green, one to each branch, and so to place them that the shoots may be drawn downwards, and at equal distances from each other. Strong shoots should be more depressed than weak ones in order that the strength of each should be equalised. If, notwithstanding this bending-out of the perpendicular, any shoot should still retain more strength than the rest, then nip out the uppermost bud of it alone—that will check it effectually.

Some varieties break close to the soil without any stopping, whilst others are very shy at branching out naturally. Such should be topped at the earliest stage of growth, in order to fill up the intended form. If the shoots grow too rapidly it is a sign that they have too much heat, too little air, and too much water. These must all be regulated according to the strength of the plant.

Some recommend having a centre shoot tied to a stick and side-branches from that central shoot. For a pyramidal form this is a good method; but to form a nice compact specimen like the one figured, no central shoot should be trained at all. The centre is sure to be filled up with shoots from the main branches. The weaker side shoots should be trained and drawn in, as it were, to form the centre of the bush. They are sure to be strong enough eventually.

Some also recommend a wire to be fixed round the pot, and matting used to tie down the shoots. This is a neat way, but there is danger in drawing down the shoots. I have seen a promising specimen spoiled by one or more of the shoots so tied down slipping off at the junction with the main branches. Sticks are certainly the safest and best trainers, for they can be lowered gradually so as to prevent the shoots having too sudden a strain upon them. Besides all this, plants trained with sticks may be more easily repotted than if trained with any material fixed to the pot in which they are growing at the time they need more

pot-room. All young specimens should have their blossom-buds nipped off the first season.

SUMMER TREATMENT.—As soon as the greenhouse becomes too warm for these plants, they should be set out of doors on a bed of coal ashes, and a shelter contrived for them to keep off the heavy rains. Rather less water should be given and the syringe hung up in the tool-house so far as these specimens are concerned—in fact, they do not need it now at all. The grand point to aim at is to get the wood well ripened. It should by the end of July be hard, firm, and woody, and of a dark shining brown colour. The leaves should begin to turn yellow, and the older ones drop off—in fact, it is the autumn with the Pelargonium. As soon as this state of rest is attained, then set the plants out of doors fully exposed to the sun, and in a short time they will be ready for the operation of

PRUNING.—This is an important point requiring considerable thought and judgment. They should be pruned at two or three seasons. For blooming early get the plants into the proper condition of ripeness early in August, prune a second lot a month later, and the last the first week in October. As soon as the plants are ready, cut them in according to their strength, and the form you intend them to take the following season. Weak plants should be cut in pretty close to one bud, stronger may have three buds, and very strong ones four or five buds each, and let each shoot when cut be at equal distances from the

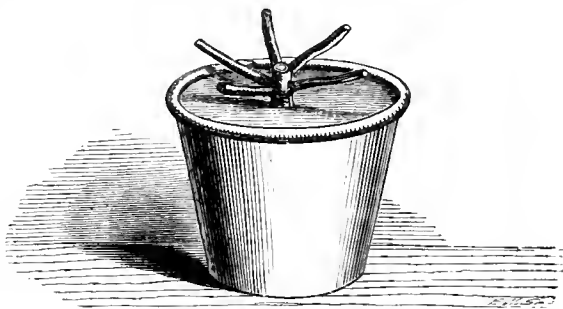


Fig. 3.—One-year-old Pelargonium, pruned in autumn, and five shoots left to branch out the following year.

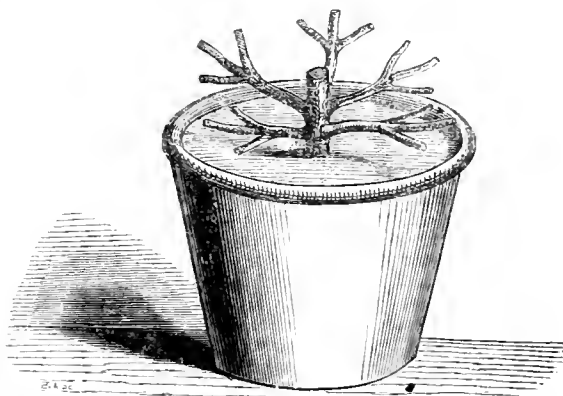


Fig. 4.—Two-year-old Pelargonium, pruned in autumn, and fifteen shoots left to branch out the following year.

adjoining ones. When pruned remove the plants into a frame set on bricks, so as to admit air amongst the pots. Keep the glass on day and night; but shade from hot sun, and give no water till fresh shoots have made their appearance, and the leaves have attained a little size. Then give a little water just to moisten the soil. They are then ready for the autumnal potting. It is sufficient to say that this potting is done as advised above for the spring potting, with this difference—that the plants are put into less instead of larger pots, the object being now to induce a large crop of blooms rather than larger plants. To get them into less pots it will be necessary to lessen the balls: hence they should be potted when the soil is rather dry, because then it is the more easily got away

from amongst the roots. Pick out all the old drainage, and prune in the roots also. Then when the ball is lessened, the drainage removed, and the roots pruned in, the plant can be easily got into a lesser pot. The soil to be used now should be pure loam and sand with a small addition of leaf mould. This will grow the plants well through the winter, and keep the leaves healthy enough. Replace them in the frame, and give but little water till the roots have spread into the fresh soil.

WINTER TREATMENT.—Towards the middle of October the plants should be brought out of the frame or pit and placed in the greenhouse. Here keep them growing slowly, and let the atmosphere be dry and not heated above 45° by day, and 40° by night. Be careful that no drip falls upon the leaves either by day or night. This slow-growing cool treatment will keep the plants stiff, bushy, and healthy, ready in the spring to start with vigour in growth, and set with bloom abundantly. Towards the middle of January, those intended to bloom in May should be repotted into their blooming-pots. In the next month repot such as are to bloom in June; and a month afterwards the remainder to bloom in July. Use the richer compost for these spring-shifts. As the growth proceeds, attend to the thinning-out the shoots where they are too thick, and place sticks to train the shoots that are left into one proper form. Early attention to these points will save a large amount of trouble afterwards. When buds are fairly visible, then give for every third watering weak liquid manure, increasing the strength as the leaves and blossoms advance in growth.

TREATMENT WHEN IN BLOOM.—It is scarcely necessary to say, when the flowers are open shade them from the sun, but some may not think of it. By shading, the blooms are protected and the season lengthened; without shading, it would be almost impossible to get out a blaze of bloom such as was seen on the specimen as shown in our woodcut. By attending to the above points of culture, and with persevering attention in keeping down insects, any grower with moderate means may produce, if not quite as fine, yet nearly as fine, a specimen as we have drawn their attention to.

T. APPLEYBY.

NEAPOLITAN VIOLETS FOR WINTER OR SPRING FLOWERING.

TAKE off cuttings as soon as the plants have done flowering in May, and plant the cuttings under hand-glasses in light garden soil at the foot of a south wall. Water and shade them. When they have struck root take off the glasses.

The first week in August prepare a bed the size of the frame intended to place over them. Put, first, a layer of broken pots or brick rubbish 9 inches deep; on this put 4 feet of leaf mould, 1 foot of free loam, 1 foot of thoroughly decayed manure, half a barrowful of clear sand, the same quantity of bone dust well mixed together. The plants should not be more than 15 inches from the glass.

Trim off all the runners from the plants before planting them in the bed. Keep the light off the frame during the autumn, except when very wet and cold. Place a layer of dry litter round the frame to prevent frost injuring the plants. When they begin to bloom never give air. Pots of plants put in any convenient place not above 65° will do very well, and a succession may be had from October to April.—J. B.

BROCCOLI, AND WHAT LAST WINTER TAUGHT ABOUT ITS VARIETIES.

As the season is at hand for sowing this all-important vegetable, it would be well to take a retrospect of the past season as contrasted with former ones, in order to arrive at a just conclusion which kinds it would be most proper to cultivate; for the past winter has disclosed many things we previously had but little idea of encountering again, and possibly many young cultivators never experienced the like before. Such a season may recur again: therefore it would be well to consider how far its evils in destroying so large a portion of our winter and spring supply of this vegetable can be avoided, and a better prospect opened out for a more efficient quantity in future.

In taking this line, it is advisable to look more particularly into the merits of the distinct kinds now generally cultivated, and from amongst them select those most likely to meet the requirements of a family in winters like the past, as well as in

seasons of less severity, like those of the three or four preceding ones. In doing this we need not go into the early history of this vegetable, which, doubtless, is enveloped in the mysteries of ages when horticultural records were less known than at present. Suffice it to say that Broccoli, as well as the Cabbage, Cauliflower, and other plants, are supposed to have all a common origin, but that their present difference and the regularity with which each kind produces its like from seed have been acquired by a long series of careful cultivation; and the different properties they present have in like manner been preserved to them by the same assiduity—but it is also certain that some of the properties of the original have been lost by this careful improvement. The finest Broccoli is far from being such a hardy plant as its progenitor, neither is it so hardy as some kinds less fine. The improvement here made is like that of the highest-bred animals—it is obtained at a sacrifice of constitution; and however much this may be attempted to be modified by intermediate means, still the improved breed is more tender than the original; and in Broccoli the most delicate in flavour are those most affected by the frost, and consequently they ought not to be planted in situations where a severe winter may be expected. But as there are several varieties more likely to do good service in such a place, it would be well to take a view of them and explain the merits of each; beginning with the one which in mild seasons is very serviceable, and noticing a few of such sections as it is advisable here to divide them into.

The Cape Broccoli.—The White variety of this differs but little from the Cauliflower in its inability to withstand frost. The Pink and Purple are a little hardier, but neither of them are to be depended upon after the thermometer falls below 24°. A single night at that degree, or even a little less, may not entirely destroy them, and if mild weather follows they may overcome it and keep on growing; but the Cape is not a variety to be depended on in cold bleak districts. It, however, has its merits. As an autumn variety it is unrivalled, and, being of more quick growth than most of the others, need not be sown so early. I have seen some that were sown at the end of June do very well, and even some of a week later than that have done so; but the middle of June, or from that to the 20th, is as late sowing as is generally advisable. One or two sowings before that time will have given an earlier supply, the seed being sown in the usual way care being taken to keep birds away; and if the weather be very hot and dry, a slight shading and watering will be beneficial.

The Walcheren Broccoli.—Some years ago an eminent gardener, well known as a successful exhibitor at the metropolitan shows, affirmed that he could supply his employer's table every day in the year from this Broccoli alone; but as the two or three winters we had at that time were mild, it is questionable, and had he lived till 1861, there would have been a long blank, probably as I do not hear of any one saving any plants of this variety the present season. Nevertheless, in general it is a useful Broccoli, harder than the Cape; and in moderate weather it grows more than most kinds do, and thereby affords a succession. In habit it differs widely from the Cape, the leaves being not so upright and more undulating—in some cases almost amounting to a fringe. When advancing into growth, however, some of these leaves turn in and protect the head a little from the frost. But this shelter is not enough at all times: it is, therefore, better to put a handful of dry straw or hay into the centre of each, in the event of a severe frosty night; or, what is still better, if the plant could be taken up and planted somewhere under cover, but not in the dark. Where there is accommodation for this, a supply is much easier kept up; but as this is not always the case, the homely makeshift above alluded to may be of service. Appearances in the garden at this inclement season being of less moment than appearances at table, it may be done to all kinds of Broccoli so far advanced as to take harm from the cold weather following. The sowing of this variety must be a little earlier than for the Cape. The early part of June is a favourable time; and once before that and once after may keep up a succession. Closely related to this variety are several, as *Snow's Improved*, and a winter Broccoli; but the characteristics of the Walcheren are a short stalk well clothed with leaves, and these of rather a robust description. The longer-legged kinds, though good in their way, are more liable to injury from the cold and frosts of winter.

The Hardy Winter Broccoli.—Under this head I purpose to include varieties widely differing from each other in every particular excepting in their capabilities of withstanding cold; but

as this qualification is an important one, we may safely regard this section as of much value. And if necessary they might be divided into subdivisions if these multiplied classes be required; but for present purposes two or three types only will be given. The first of these being the Purple Sprouting Broccoli, which appears to be a sort of hybrid between an ordinary Purple Broccoli and some of the Greens, or Kales; for the small sprouting heads are more or less intermixed with leaves, giving it some of the features of some of the many-headed kinds of Greens—these leaves, however, acting as a great preservation to the head in excluding frost. A good variety of *Sprouting Broccoli* ought, therefore, always to be cultivated to some extent, proportioned to the situation and other circumstances of the place—most abundantly when the situation is a bleak cold one, and *vice versa* when it is the contrary; for it is not so much admired at table as a delicate White Broccoli, but is admissible when other kinds are not forthcoming. Next to this is a variety called *Protecting Broccoli* with some one's name appended. These are generally of medium height in the stalk; and being furnished with a profusion of leaves, the inner ones form a protection to the advancing head by concealing it more than other varieties generally do. The most common colour is a cream or brimstone for the head; but a good pink or pale purple is sometimes had with this quality. It is, however, not so hardy as the Sprouting, but is more esteemed at table, and ought always to be grown more or less. It is needless here mentioning varieties, as those most in fashion at the present day may be eclipsed by others next year. Another section of winter Broccoli is one that has fallen much into disrepute of late years—the old *Purple varieties*—the heads never very large, being more rounded and even-pointed than flat, the leaves curly, and the plants tall. It is now some years since I saw a really good variety of this: the attention of cultivators being directed to the growth of the White and Cream varieties, this useful hardy one has been neglected. Some thirty years ago I remember that *North's Purple* was one of the most useful kinds grown, and having seen it survive winters that killed the White kinds, I should be pleased to hear of some one presenting us with a really good hardy Purple Broccoli again. The Pink class is rarely so hardy, those that I have seen presenting much the character of the Cape and kindred varieties. All the winter ones ought to be sown by the end of April or beginning of May. In late places they cannot be sown too early; in more favoured spots May will be soon enough.

The Large Varieties of Spring Broccoli.—There is no lack of names to this class; and broad hints have at times been given that several high-sounding names are often given to the contents of one bag of seed. The *Portsmouth*, *Mammoth*, *Southampton*, and *Brimstone* may all and each be taken as examples of the class I allude to; noble, finely formed heads of great size coming into use at the end of April, or earlier if the spring be favourable, and all noted for the closeness and symmetry of their growth. But there will be few of these in the present season in the majority of places, as, the plant being tall, receives little protection from the snows of winter unless they be deep; and if much injured by the winter, the head is proportionally smaller, and very often the whole plant is entirely killed; but when the plants do live through the winter with little injury, the noble-looking heads they present us with are justly admired. They may be sown from the middle of April to the first week in May; but as much depends on the after-treatment they receive, a week or more are either lost or made up by their after-cultivation.

The Late Varieties of Broccoli.—Like the hardy winter sorts, these are of various kinds, but generally dwarf. I have grown a variety for some years called, I believe, originally *Boules' Late Broccoli*, but it has disappeared in the seed lists. Its characteristics are a dwarf habit, wrinkled, and much undulating leaves, and the head more like a half globe than flat; but neither in this nor yet in the size of the plant is it large, and may in consequence be planted closer than may larger kinds. I believe the *Wilcore* to be much the same variety; and, doubtless, there are several others having these properties. It does not come into use all at once, as *Miller's Dwarf*, the *Russian*, and *Danish*, or other varieties of that kind do; but, like the kinds previously enumerated, it comes in gradually, and, consequently, is more useful. Its extreme lateness is also a good quality, for we often have it in use until a very few days prior to the first spring Cauliflower is cut, sometimes not more than four days. It is also hardy, though not perhaps quite so much so as the Russian,

Danish, and *Miller's Dwarf*; but as these all come into use in one week, their utility in ministering to the wants of a family is much diminished: nevertheless, they are the hardiest of all our winter-standing Broccoli, and, being small, may be planted closer than some kinds. Sow all the above as early in the season as convenient. And though they are often planted amongst growing crops during the summer months, yet let them be well inured to the weather before winter sets in, and they ought to have made considerable growth before then.

GENERAL REMARKS.—*Protecting Broccoli in Winter.*—Where there is the convenience of a cold pit, with a covering of some kind or other, a quantity of plants that are about forming their heads may be lifted with balls of earth, and planted in this pit tolerably thick. By this means a succession may be kept up in the severe weather. But as every grower has not the convenience of a cold pit, and structures of that kind may be occupied with something else, it is better to adopt some other plan. A slight covering with dry straw will keep off a severe frost, and is easily accomplished; and a good old-fashioned plan of partly laying the plants on their sides tends to protect the crown very much. The method is this—Supposing the rows to run north and south, begin at the west row, and take a spit of earth out from the collar of each plant on the west side; and having done so, bend the plant gently to that side, and, taking a spit of earth from each plant on the second row, lay it on those that are bent down; and the same course being followed by the third and succeeding rows, the whole plot will have the appearance of plants laid down in a slanting direction, and, being all pointing westward, they do not receive the morning sun direct on their crowns. Certainly the tall varieties of Broccoli keep better this way than when standing upright; and though they eventually bend and turn upwards, the hard weather is usually gone by that time.

Conditions Necessary to Enable Them to Stand the Winter.—Plants that have been encumbered by peas, scarlet runner beans, or other high crops, which are only removed on the eve of severe weather, have but a poor chance to withstand it. Neither are they in a good condition when their growth, owing to the mild weather and richness of the ground, is prolonged to the period when severe frosts set in. This latter evil was one of the causes of the severe losses everywhere complained of in the past winter; but it is also wrong to allow peas and other crops to draw Broccoli up into a sickly growth, and perhaps expose them suddenly at a time when shelter is more needed. Another thing ought also to be mentioned here—a piece of rich ground is not the best place to insure a healthy and hardy growth capable of standing much cold, although, in general, such soils will produce the best Broccoli; but dry, poor soils have a tendency to harden the tissue of the plants, and they being more in a condition which we call “ripened,” are more capable of bearing the cold of winter.—J. ROBSON.

POTATO CULTURE.

A RECENT writer, in an article on Potato disease, wisely proposes planting in double rows on ridges as more convenient for covering and laying down the haulms, which he contends is a preventive in a great measure of disease. This of course (if extra space is given between the double rows), gives better opportunity for raising sufficient mould for that purpose. This he affirms prevents the fungus, &c., which first appears on the blades, from descending to the roots and tubers. Although I am sceptical of this being a specific remedy, allow me to add, in confirmation of the utility of planting on ridges with wide intervals, that I have for several years succeeded well with early kinds by planting in double rows between my celery-trenches, after the trenches had been prepared. At the last operation of forming the trenches, when the celery is about to be planted, the haulms are pressed down with the spare mould on each row toward the trenches. The tops thus hang down on the sides of the ridges attracting the fungus, &c., from the haulms, and draining excessive moisture from the roots into the celery-trenches, where it is absolutely always much needed.

I strongly recommend the practice in garden compartments, as it interferes but little with the celery crop, and secures an early and sound crop of Potatoes, where but little else is commonly grown. The mould where the Potatoes grow is not required for the celery till the Potatoes are cleared off. The first and second earlies may thus both be cultivated with advan-

tage: No. 1, such as Ash-leaves and Frames, growing between the first plantations of celery; and No. 2, such as Flukes and Flour-balls, &c., between the second or later plantations. Where celery is not required in quantity, I recommend that after the ground has been well prepared in the common way on the flat, by manuring and deep digging, to form it into ridges 4 feet wide, and thereon to plant double rows of Potatoes to be treated in a similar way as I recommend for those between the celery. In the centre of three-feet intervals, I would reserve one-foot-and-a-half spaces for double rows of successional crops of Peas, and Scarlet Runner Beans, to be sown in May and June. Where Broccoli, Cabbages, Savoy, Cottager's Kale, Green Kale, Thousand-heads, &c., are required, let the ground be formed into complete seven-feet ridges, still adhering to double rows of Potatoes on the top or centre, with the furrows, or lowest parts, reserved for double rows of the Cabbage-works; to be planted in June or July, right and left of the said furrows, to be moulded up during autumn with the mould from the Potato-plots, as a preventive or protection from excessive wet and frosts in winter. Thus six-feet spaces will be allotted (and it will be found not too much), from one outside Potato-row to the next, or three-feet spaces from the Potatoes to the Peas, Beans, Cabbage-works, &c., changing the furrows in winter to where the Potatoes grew in summer.

By reversing or alternating the crops next season, no one kind of crop would be grown on the same ground as it grew upon the year before. In field culture all the practices of digging may be substituted, and with equal advantage, by deep ploughing, whether it is for Potatoes or other crops with the same wide spaces, either late planted, or fallowed (if foul) for similar crops the next summer, at the will of the cultivator.—A HARDY, *Maldon, Essex.*

LEEDS SPRING FLORAL EXHIBITION.

AN exhibition of early spring flowers, such as Hyacinths, Tulips, Narcissi, Cinerarias, &c., is rather a novel idea. A decidedly successful one for the first time took place on Wednesday, the 20th of March last, in the magnificent Town Hall, at Leeds in Yorkshire, originated by Mr. T. D. Appleby, the indefatigable and enterprising manager of the floral and horticultural fêtes in that emporium of the woollen trade. Though the day was unfavourable, the company in the afternoon was numerous and fashionable; and in the evening the large room was crowded, showing the spring flowers are equally, if not more, attractive than those of summer.

Nurserymen, gentlemen's gardeners, and amateurs vied with each other, and certainly the display did them great credit. The flowers were all, with a few exceptions, in pots, and arranged on a platform down the centre of the room, the Hyacinths and Tulips filling one side completely. A bank of those lovely spring flowers nearly 100 feet long, was a truly beautiful sight. The odour from the Hyacinths perfumed the air, filling that large Hall with their agreeable scent. On the other side the Narcissi and Cinerarias, and some splendid dishes of cut flowers, chiefly Camellias and Azaleas, placed in dishes in wet sand, were almost equally effective. On a long table in front of the orchestra there were placed the collections of Azaleas, Camellias, and miscellaneous plants, all in good bloom.

In single specimens the most remarkable were a most beautiful new Caladium, in the way of *C. argyrites*, but much handsomer and larger foliage than that little gem. This came from Mr. Franklin, gardener to J. G. Marshall, Esq., of Headingley Hall, the successful raiser of *Begonia Marshallii*; also, a grand specimen of a tree *Mignonette*, the giant variety grown as a standard, with a stem 3 feet high, and a head covered with large spikes of its fragrant blossoms $1\frac{1}{2}$ foot high, and as much through; also, an Indian Azalea, exhibited by Mr. Dymont, gardener to W. G. Joy, Esq., of Headingley, was 10 feet, a perfect pyramid of white blossoms. The collection of Azaleas exhibited by Mr. E. Thompson, were well grown and splendidly bloomed. As much cannot be said for the Camellias, accounted for by the gardeners as owing to the wet autumn and severe winter having caused most of the buds to fall off generally throughout the district. Music added her charms to the enjoyment of the visitors; Spencer's well-known operatic band being in attendance. The extending the hour of closing the Exhibition till ten o'clock, gave many of the tradesmen and warehousemen an opportunity of visiting the Exhibition, though, no doubt, some little inconvenience to the exhibitors, especially those that came from a distance, was occasioned thereby. The Hall when lighted up with gas showed

off the flowers to a much better advantage than the dull, wet day did. The greatest and most successful exhibitor of Hyacinths Tulips, Narcissi, and Cinerarias, was Mr. W. Dean, formerly manager for Mr. C. Turner, of Slough, but now established as a nurseryman on his own account at Shipley, near Bradford, in the same county. He deservedly obtained the first prize for twenty-four Hyacinths; and as many of our readers may be desirous to know what kinds do well in pots, we noted down a few of what were considered the best.

In *Double Reds*, the best was Lord Wellington, not high in colour, but with large bells and a good spike. Princess Royal, fine red, with deeper stripes; very large bells and spike. *Single Reds*, Robert Steiger, deep crimson bells; large and good spike. Madam Hodson, pale pink; a fine spike, and large bells. Norma, flesh colour; very excellent both in spike and bells. Belle Quirine, also flesh colour, but deeper striped with carmine; fine spike, and large bells. *Double Blues*, Glory of Albion, light bluish-purple; long, close spike, and bells very large; a fine variety. Prince Frederick, striped bluish-lilac—a novel and beautiful colour; a good variety. La Fontaine, light porcelain blue; good dense spike, large bells, and fine in quality. Laurens Coster, shaded purple and blue; large, fine spike; one of the best varieties. Blocksberg, pale lilac striped with blue; an old, good variety. *Single Blue*, Argus, indigo blue, with distinct white centre; a new and very striking variety. Baron von Tuyl, dark porcelain blue; large bells, and very fine spike; one of the best. Couronne de Celle, porcelain blue; extra large bells, and long spike; a beautiful, good variety. Grand Lilas, delicate azure blue; large bells, and very large spike; excellent. Lord Raglan, shaded porcelain blue, darker than Charles Dickens; good bell, and large spike. Prince Albert, rich, glossy, blackish-purple; good bell, and very large spike; the most striking Hyacinth exhibited. *Single White*, Elfrida, blush white; large well-shaped bells, and a good spike. Madame de Staël, the purest white; with good bell, and fine spike. Madame Van der Hoop, pure white; fine bell, and extra long fine spike. Voltaire, blush white; very large bells, and good spike.

Tulips were in great force. In Scarlets nothing could be better grown or more splendid than the variety of Van Thol named Vermilion Brilliant, a splendid high-coloured kind which everybody ought to grow. It is excellent either for forcing in pots or for the border.

The *Narcissi* were not very numerous, but very well bloomed. Louis le Grand is a rather new kind, and is a pure white. The old Grand Monarque was in good feather, and keeps its place as a fine easily-forced variety.

The collections of *Cinerarias* were well-grown dwarf plants, and exceedingly well bloomed. The best came from Mr. Dymont. In this class of early flowers Mr. Dean submitted several new seedlings, and the Judges unanimously selected the following as being new and quite distinct from any now in cultivation:—

Crimson Gem, a self of a deep rich crimson colour, finely formed, the petals broad and firm, and the disk rather large, and of a dark colour.

Kate Appleby, a nearly white self, with a dark disk; the petals very broad, and the least imaginable tipped with pink; a delicate, desirable variety.

Mrs. Appleby, white ground, broadly margined with crimson; fine form, quite flat and circular; good habit.

Mrs. George Edwards, white ground, broadly margined with purplish-crimson; dark disk; form good, and habit dwarf and compact.

Lady Fairbairn, white ground, delicately margined with scarlet; the best of its class; form perfect; habit good.

From the fact that an early spring show in a provincial town for the first time being successful, it may be fairly assumed that the next at the same season will be still more appreciated; exhibitors will be better prepared. At this time of the year a good display of forced flowers is highly attractive, and in addition this is the right time to have a splendid exhibition of that noble flower the Camellia.

STRAWBERRY PLANTS FOR EARLY FORCING.—The general practice of preparing Strawberry plants for early forcing, is to secure the earliest runners of the current year, and transfer them to their fruiting-pots as soon as possible. I may safely say this practice requires a great deal of attention and good treatment to obtain strong well-matured plants before the winter of same year. The practice I have followed successfully for two years

is to peg down a sufficient quantity of runners any time in June. When sufficiently rooted lift them and transplant them in nursery-rows on a piece of ground in good condition, having a south aspect preferred (with me), there to remain all winter and next spring, until the end of May or beginning of June. Lift them with moderate balls, and plant them in six or eight-inch pots, according to strength of plants, in good rich soil; then plunge the pots up to the rim in coal ashes or sawdust in a sheltered situation exposed to the sun, paying attention to

watering the plants. They may safely remain until the approach of winter, when they should have the protection of a glass frame or other convenience, from whence they may be taken to the forcing quarters as occasion requires. The plants will be greatly benefited by giving them a surface dressing of rich loam early in November. By this treatment the plants will give satisfaction. Not having seen or heard of this method being practised, I thought it might be worth the notice of some of your numerous readers.—(X., in *Scottish Gardener*.)

REDLEAF AND ITS GARDENING.—No. 2.

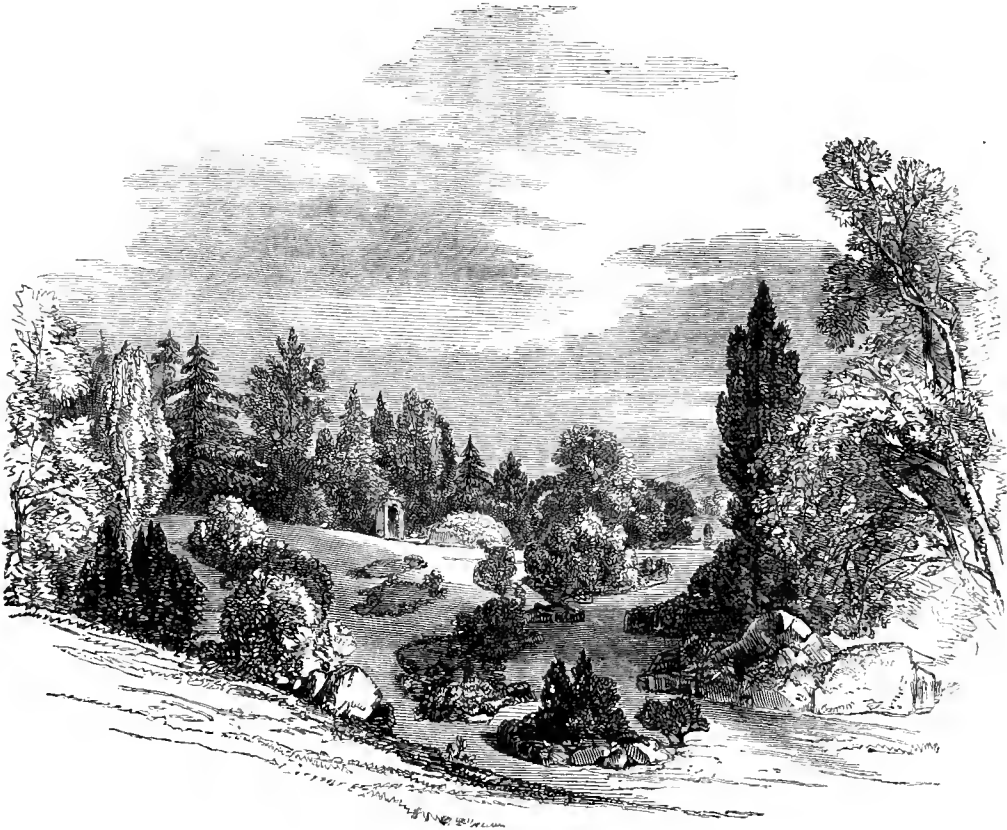


Fig. 3.—REDLEAF—View of the Rock Garden from the bottom of the Lawn.

THE two engravings given at pages 4 and 5 being the English garden and the view to the westward of the mansion, we now come to another portion of the grounds, and one, perhaps, the most lovely of any,—the Waterfall Rock Garden, which comprises an extensive space; its northern side formed by an irregular face of natural rock, while masses of rock are scattered about in various directions—not little pigmy imitations of rock-work composed of small stones forming artificial-shaped mounds, but large blocks which, individually, might almost be measured by the cubic yard. Groups of these masses present themselves at various points, generally one side of them being concealed by some choice tree or shrub, but enough of the stone is seen to give it the character it is known by, and it would be difficult to conceive a more happy effect than this garden has when seen in bright sunshine. I believe the whole of the stonework is artificial, and yet it shows all the features of having been there from time immemorial. Large stones, partly jutting out of the soil in some places, in others rising to considerable heights, with Heaths, dwarf Rhododendrons, *Pinus Clanbrasilensis*, and other shrubs amongst them; and a mass of *Juniperus repens* I noticed as being upwards of 25 feet in diameter, and might have been 50 feet, but was obliged to be cut. The beautiful

carpety appearance this has, with its soft elastic shoots overlying each other, offering a good example to our manufacturers in the making of plush and similar draperies; and two *Pinus Clanbrasilensis* appeared to be 7 feet through and 5 feet high. *Thuja Doniana* promises to become a pretty and useful Conifer, and is quite hardy. Several Heaths appear to bear cutting as well as Box does in a general way.

A flight of rustic stone steps ascended an eminence in this garden, and a walk of the same material perhaps showed more the assistance it had received from art than anything else, and was the only thing I could find fault with, and, perhaps, in this I might be wrong. Some noble specimens of Coniferæ skirted this garden, and linked it with the more ordinary grounds to the south. I had only an opportunity of ascertaining the dimensions of a few of these trees, but I hope Mr. Cox, the intelligent gardener there, will give us more particulars about them.

Amongst other trees I noticed *Abies morinda*, 37 feet high; *Pinus ponderosa*, 50 feet, a fine tapering tree, more inclined to go upwards than it generally does; *Abies Menzeisi*, 32 feet, very fine; *Pinus radiata*, in the way of *P. insignis*, but of a still more deep green, 12 feet, and very promising; *Pinus*

muricata; Libocedrus chilensis, 7 feet; both the Cephalotaxus Fortunei, male and female, which in foliage and general appearance are much more distinct than many varieties to which distinct specific names are given; some fine Irish Yews and

other trees; and what give a greater contrast to the whole than any other Pinus were two beautiful specimens of a deciduous Cypress called *Clyptostrobus sinensis*. Outside of all these were some good Oaks on the sloping part of the bank facing the west.



Fig. 4.—REDLEAF—View up the Lawn.

Engraving No. 4 presents a view of that portion of the lawn nearest the mansion, and pointing to it. A corner of the house is seen. The grounds here are more open, but not more so than is prudent, considering the good things by which the house is surrounded. Close, well-kept turf, not cut up into tiny flower-beds, nor yet too much intersected with walks, forms the

principal feature. The inclination of the ground to the west and south is allowed to take that form in the more easy and natural way. Some fine shrubs and trees breaking the outline in the westerly direction, while the high trees behind the English garden form a good background to the right, the whole being in excellent keeping.—J. ROBSON.

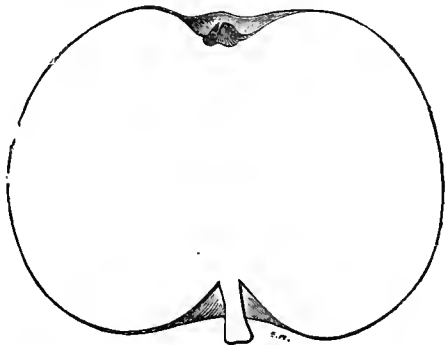
(To be continued.)

BRITISH FRUITS & POMOLOGICAL GLEANINGS.

ASHMEAD'S KERNEL APPLE.

SYNONYME—*Dr. Ashmead's Kernel.*

WE have received from Messrs. J. C. Wheeler & Son, of Gloucester, a basket of the fruit of this most excellent dessert Apple. It is a sort not generally known, as its cultivation is confined more particularly to the west of England, where it was raised; and it is with the view of giving it the greatest publicity, that we extract from Dr. Hogg's "British Pomology" the figure and description of this truly valuable variety, which is now just coming into use, and will continue at its best up till May and June, if properly preserved.



"Fruit below medium size; round and flattened, but sometimes considerably elongated; the general character, however, is shown in the accompanying figure.

"Skin light greenish-yellow, covered with yellowish-brown russet, and a tinge of brown next the sun.

"Eye small and partially open, placed in a moderately deep basin.

"Stalk short, inserted in a round and deep cavity.

"Flesh yellowish, firm, crisp, juicy, sugary, rich, and highly aromatic.

"A dessert Apple of the very first quality, possessing all the richness of the Nonpareil, but with a more sugary juice. It comes into use in November, but is in greatest perfection from Christmas till May.

"The tree is very hardy, an excellent bearer, and will succeed in situations unfavourable to the Nonpareil, to which its leaves and shoots bear such a similarity, as to justify Mr. Lindley in believing it to be a seedling variety.

"This delightful Apple was raised at Gloucester, about the beginning of the last century, by Dr. Ashmead, an eminent physician of that city. The original tree existed within the last few years in what had originally been Dr. Ashmead's garden, but was destroyed in consequence of the ground being required for building. It stood on the spot now occupied by Clarence Street. It is difficult to ascertain the exact period when it was raised; but the late Mr. Hignell, an eminent orchardist at Tewkesbury, in Gloucestershire, informed me, that the first time he ever saw the fruit of Ashmead's Kernel, was from a tree in the nursery of Mr. Wheeler, of Gloucester, in the year 1796, and that the tree in question had been worked from the original, and was at that time upwards of thirty years old. From this it may be inferred that the original tree had attained some celebrity by the middle of last century. The Ashmead's Kernel has long been a favourite Apple in the gardens of West Gloucestershire, but it does not seem to have been known in other parts of the country. Like the Ribston Pippin, it seems

to have remained long in obscurity, before its value was generally appreciated; it is not even enumerated in the catalogue of the extensive collection which was cultivated by Miller and Sweet, of Bristol, in 1790. I find it was cultivated in the Brompton Park Nursery in 1780, at which time it was received from Mr. Wheeler, nurseryman, of Gloucester, who was author of "The Botanist's and Gardener's Dictionary," published in 1763, and grandfather of Mr. J. Cheslin Wheeler, the present proprietor of the nursery, to whom I am indebted for specimens of the fruit, and much valuable information connected with the varieties cultivated in that district."—H.

ENGLISH RAISINS.—In corroboration of what was said by "R." in last week's JOURNAL OF HORTICULTURE I have read in an American gardening journal an account of a long discussion about preserving Grapes. They seem to do so largely in America, and from what they say, by gathering them late in October, I suppose they use their thick-skinned sorts, Isabella and Catawba, &c., and place the bunches in single layers in paper boxes, holding about 5 lbs. Some people keep them in a dry room, and then place them in a dry airy cellar for the winter. One person said that he kept his Grapes till April, and others said till February and March—no bran with them, as recommended by "R." In their dry climate the cellar would do, but not here, I think. A dry, warm room must be our place. At any rate, reading the above has convinced me that by the simple plan suggested by "R." any family in a Grape-season may have them on their table all winter, and those with vineries need not have the trouble and expense of keeping them on the Vines.—T.

FRUIT FORCING IN THE OLDEN TIME.—Bradley says, writing in 1722, "Mr. John Millet (of North End, Fulham), whom I have so often mentioned on account of ripe Cherries in February, was the chief if not the only gardener in England for bringing his fruit out of season to good ripeness and perfection. I have eaten in February Duke Cherries so ripe that they were almost black, and, in my opinion, were as well tasted as any of the summer growth, which depended on his just management of them, in applying a due heat at proper times."

BOWOOD MUSCAT GRAPE.—This Grape was raised from seed by Mr. John Spencer, of Bowood, and is distinguished from Muscat of Alexandria, of which it is a seminal form, by the plant being very much later in starting into growth, and in setting its fruit more freely than that variety. This peculiarity in vegetating late is not, however, maintained during the whole period of growth, for the fruit is ripe equally as early as that of the Muscat of Alexandria, from which it is generally acknowledged to be distinct. All that has been said about this variety being identical with another sort called "Passe Muscat" must to some extent be imaginary, Passe Muscat being merely a synonyme of Muscat of Alexandria, and regarded as such by all pomologists both in this country and on the continent for the last hundred and fifty years. There can be no doubt but that Bowood Muscat has its own individuality, however similar it may be to any other variety.

ACTION OF FROST ON THE QUALITY OF FRUITS.—A Connecticut friend states that Pears, which usually have an astringent property, are rendered of the highest excellence by a slight exposure to white frost. The Vicar of Winkfield he particularly refers to as being rendered a first-class fruit by this process. We have a neighbour who has a very large Vicar; and it has been a curious subject for speculation with us for some years past, why the fruit on some portions of the tree should be very superior, and on others so absolutely worthless; and we think it quite probable that the hint above noted affords the real reason. The after-treatment of fruit is of quite as much importance as obtaining good kinds, and the note of our friend is worthy of more extended observation. It is well known how frost acts in removing the astringency of the Persimmon; and it is just as likely to have the same effect on the Pear. Many of our second-rate Pears would be really delicious but for a slight puckering flavour. If frost will aid in removing this objection, what a valuable fruit Louise Bonne of Jersey, for instance, would be! Of course, caution will be needed, as too much frost would induce decay.—(Gardener's Monthly).

[This being an extract from an American journal, the remark upon Louise Bonne of Jersey is not applicable to that fruit grown in this country.—Eds. J. of H.]

ENTOMOLOGICAL SOCIETY'S MEETING.

THE Meeting of this Society, held on the 4th March, under the presidency of J. W. Douglas, Esq., was fully attended. The display of new and interesting insects taken during the preceding year, notwithstanding its inclement nature, and the near approach of the ensuing collecting season, was remarkable, proving as it does the unabated ardour with which the science, or rather, perhaps, the collecting of specimens is pursued.

Dr. Knaggs stated, that having forwarded specimens of the Moth (to which he had applied the name of *Nonagria Bondii*), to M. Guenee, the great authority for the nomenclature of European Moths, it had been pronounced a distinct and undescribed species.

Mr. Stainton exhibited a new British Moth belonging to the same family, Noctuidæ—viz., the *Xylina conformis*, of Treitschke, which had been taken on Ivy blossoms, near Cardiff, in October last.

Dr. Wallace exhibited specimens of a Moth belonging to the genus *Lasiocampa*, reared from the caterpillar taken in the Isle of Wight, which closely resembled the supposed species from the north of England, named *L. callunæ*, by Dr. Palmer; also, some fine dark varieties of *Hemerophila abruptaria* and its pupa case found near London.

Mr. Mitford exhibited a curious hybrid Moth reared between *Biston pilosaria* and *hispidaria*; also a fine variety of *B. prodromaria*, and a series of six species of Moths belonging to the curious genus *Fumea* (commonly called chimney sweepers from their small size and black colour), which he had reared from the caterpillars, which inhabit moveable cases, taken at Hampstead, one of which appeared to be undescribed.

Mr. G. R. Waterhouse continued his critical observations on the species of minute British Coleoptera, on which he has been for many years engaged. He exhibited a fine specimen of *Anobium denticolle*, taken in the neighbourhood of London, and read descriptions of new and rare species of the genera *Scymnus*, *Clambus*, and *Bryaxis*.

A paper was read by Mr. Kirby on the geographical distribution of the beautiful Moths forming the family *Zygenidæ*. The majority of these insects are natives of the warmer regions of the earth.

A monograph on the genus *Pronophila*, belonging to the family of Butterflies, *Hipparchiidae*, by Mr. Hewitson, was read. The species are natives of equatorial America, and bear a close resemblance to our meadow-brown Butterflies.

A paper containing descriptions of new species of *Aculeate Hymenoptera*, taken at Panama, by Mr. Stretch, was also read by Mr. F. Smith.

ROSES AND THE SEVERE WINTER.—The sensible suggestion in a recent number of THE COTTAGE GARDENER that the sad destruction of Roses through the late frost should lead to their cultivation upon their own roots is singularly confirmed in my own case. Whilst Lamarque, Safrano, *et hoc genus omne* have been swept away, a delicate Tea-scented Rose, which I usually remove for the winter to the greenhouse, has stood the severe frost out of doors, and though it has died back within a few inches of the ground it is making good shoots; it grows from its own roots.—BRUTONIENSIS.

REPORT ON THE GARDEN PEAS.

GROWN AT CHISWICK DURING 1860.

By ROBERT HOGG, LL.D., F.R.H.S., Secretary to the Fruit Committee.

22. November Prolific.....NUTTING & SONS.

The plant is 2 feet high, with dark green foliage. The stem is rather robust, generally simple, but occasionally branched, and bears from twelve to sixteen pods. The pods are generally in pairs, rather short, and contain from four to six Peas in each. Ripe seed white, medium-sized, smooth, and compressed.

Sown February 19th; bloomed June 16th; slatted June 28th; and the pods ready to be gathered July 11th.

This somewhat resembles in growth the *Royal Dwarf*, but is very inferior to that variety; and, in fact, is not worth growing for any purpose.

23. Egg.....NOBLE, COOPER, & BOLTON.

This is a very old variety, and long known by the name of

Black-eyed Susan from the seed having a black hilum or eye. The plant is of a strong and robust branching habit of growth, and from 7 to 8 feet high. It produces about eighteen pods, which are almost always in pairs, and these contain about seven good-sized Peas, which are large and oval like a horse Bean. Ripe seed white, large, egg-shaped, and with a black hilum.

Sown February 19th; bloomed June 20th; slatted July 18th; and the pods were ready to be gathered July 12th.

This, though an abundant bearer, is quite a worthless variety, and it would be difficult to say for what object it is cultivated. The Peas have a very thick skin, and a coarse bean-like flavour, and when cooked are generally of a dusky brown colour.

24. Victoria Marrow.....NOBLE, COOPER, & BOLTON.

SYN. *Gibbs' Defiance*GIBBS & CO.

This is also known by the names of *Waterloo Marrow*, *Giant Marrow*, *Wellington*, *Royal Victoria*, and *Tall Marrow*.

The plant is of a strong and vigorous habit of growth, having a simple stem from 6 to 7 feet high. The pods are produced near the top of the stem, sometimes single, sometimes in pairs in about equal proportion, and contain from five to seven very large Peas. Ripe seed white, large, uneven, and roundish.

Sown February 19th; bloomed June 18th; slatted June 26th; and fit for use July 13th.

25. Princess Royal.....TURNER.

The plant is 3 feet high, a strong and vigorous grower, with dark green foliage. The stem is generally simple, but occasionally branched, bearing from ten to twelve pods, which are usually in pairs. The pods are large, and have an attractive appearance, but they fill slowly and indifferently: so much so that when opened they average only from three to six large Peas in each. Ripe seed large, round, uneven, and white.

Sown February 19th; bloomed June 12th; slatted June 26th; ready for use July 20th.

This variety seemed to have suffered from the cold summer, the pods having a chilled and starved appearance; and it is, therefore, not improbable but that in a warm season it may prove a useful and prolific late Marrow.

III. GREEN MARROW PEAS.

Ripe seed of a mixed white and olive colour, either small, round, and pitted, or large, irregular, and uneven. Foliage dark green and blotched. Pods dark bluish-green, very glaucous.

26. Prizetaker.....NOBLE, COOPER, & BOLTON.

SYN. *Prizetaker Green Marrow* SUTTON & SONS.

Rising Sun.....TURNER.

Leicester DefianceBECK & CO.

The plant is 4½ feet to 5 feet high, of a vigorous habit of growth. The stem is sometimes simple and sometimes branched, and produces from twelve to eighteen pods. The pods are in pairs, very rarely single, and of a deep bluish-green colour, covered with a thick and distinct bloom; they contain six to seven large Peas in each, which are of a dark bluish-green. The ripe seed is small, round, and of a mixed white and green colour.

Sown February 19th; bloomed June 5th; slatted June 20th; ready for use July 6th.

This is a very excellent Pea, and an abundant bearer; but I cannot perceive any great difference between it and Bellamy's Early Green Marrow, which I grew in a collection for the purpose of comparison in 1853, and a very excellent form of which was grown by Messrs. Noble, Cooper, & Bolton, under the name of Noble's Early Green Marrow. In that year the latter was sown as late as the 5th of April; bloomed on the 15th of June; slatted on the 21st; and on the 8th of July the crop was ready for use.

27. Early Green Marrow NOBLE, COOPER, & BOLTON.

SYN. *Dwarf Green Marrow*...HURST & M'MULLEN.

This bears considerable resemblance to the preceding, with the exception of having a smaller pod, and being about five days later in coming into use. It also grows about 7 feet high, and is in every respect an inferior variety to it.

(To be continued.)

TRADE CATALOGUES RECEIVED.

Catalogue No. IX.—Stove and Greenhouse Plants, by Peter Lawson & Son, Edinburgh, London, and Hull.—This is in Messrs. Lawsons' usual 4to form, closely printed, and extending

over thirty-eight pages. It is arranged into—1, Greenhouse Plants; 2, Ferns; and 3, Stove Plants, or plants cultivated under glass with heat. The first is divided into—1, Plants cultivated under glass in winter, and out-doors in summer; 2, Selection of greenhouse climbing plants; 3, Epacris; 4, Cape Heaths; 5, Indian and Chinese Azaleas; 6, Camellia japonica. The second division is arranged in—1, Greenhouse and Stove Ferns; 2, Hardy Exotic Ferns; and 3, Hardy British Ferns. The Stove Plants are divided into—1, Selection of Stove Plants; and 2, Stove Climbing Plants. We need hardly say this catalogue is an excellent one.

List of Plants of the Fir suitable for the climate of Great Britain, cultivated at St. John's, by Richard Smith, Nurseryman and Seed Merchant, Worcester.—In this catalogue we have before us a book prepared with great skill and pains, which serves the purpose not only of a priced catalogue, but a reference for useful information on every subject which it contains. It extends over seventy-six pages, and is in the 4to form. The collection of Conifers it records is an extensive and a valuable one.

A Descriptive Catalogue of Chrysanthemums, Dahlias, &c., grown for sale by William Holmes, Well Street, Hackney, N.E., contains the names of everything worth having, and good descriptions of them. We have also before us Mr. Holmes' *Catalogue of Garden, Agricultural, and Flower Seeds*, of which the same may be said.

Catalogue of Agricultural, Kitchen-garden and Flower Seeds, sold by Edward Taylor, Malton, is a copious catalogue and well got up.

Descriptive Catalogue of Seeds for the Farm, the Kitchen Garden, and the Flower Garden, by John A. Bruce, Hamilton, Canada West.—This is a meritorious production, a worthy scion of a noble family, which might raise a blush on the cheek of its elder brethren. Some of our provincial and metropolitan houses, too, might take a lesson from their Canadian cousin.

WORK FOR THE WEEK.

KITCHEN GARDEN.

As the season for applying manure in a liquid state to kitchen-garden crops is approaching, it is advisable to provide a tank, a barrel, or any other sort of receptacle in the dungyard, or frame-ground, for receiving all the drainings of hotbeds, heaps of fermenting dung, &c. Such liquid manure produces a most beneficial effect on all crops when applied during their growing season. After the late rains it will be advisable to pass a heavy roller over the gravel walks to set and bind them well for the season. Trench up all spare ground, placing all green refuse at the bottom of the trench. Take every opportunity to destroy slugs which the recent rains have brought out from their winter quarters in abundance, an application (to be repeated), of quick lime on a warm evening after a showery day, is a well-known remedy. *Basil*, sow in pans or on a slight hotbed, and afterwards plant it out. *Beans*, earth up the early crops, but before doing so lay a little soot close to the stems; timely earthing will also prevent the wind damaging them. *Broccoli*, make a sowing of most of the varieties. By sowing early there is time for a second sowing in case of failure. *Carrots*, thin out those sown in frames, and give them a liberal supply of water when dry. *Kidney Beans*, a sowing may be made on a warm, sheltered border where the soil is favourable to early crops, and a sowing may be made in pots for planting out as soon as all danger from frost is over. *Lettuce*, loosen the soil about those planted in the open ground and save them from slugs. *Onions*, sow the Silver-skinned on a poor, dry piece of ground to produce picklers. *Sea-kale*, remove the covering immediately it is done with. If there is any yet remaining to be covered, let it be done before it grows much. *Turnips*, thin out those in frames, and give them water when necessary. Take every opportunity for eradicating weeds; hand-weed where practicable as it more effectually answers the purpose than hoeing and raking where the soil is moist.

FLOWER GARDEN.

Now is the time to come to some final arrangement as to the colours for the beds and borders, that a calculation as nearly as possible may be made of the number of plants that will be required for each bed and border. The *Mimulus* family may soon be transplanted in fresh patches in moist soil and situation, not forgetting that popular favourite the Musk, which should be planted in large patches. See that *Narcissi* and *Fritillarias* are

staked and tied in good time. Proceed with the planting of hardy climbers against walls, trellises, and verandahs, selecting some of the most showy species of *Caprifolium*, *Clematis*, *Wistaria*, *Bignonia*, with some of the strong-growing *Noisette*, evergreen, and Hybrid climbing *Roses*. Sow, if not already done, patches of some of the most showy of the hardy annuals in vacant places that are usually to be found in the herbaceous beds, and in the edges of clumps and borders in the shrubbery. The following are suitable for the purpose—Double Poppies of various colours, African and French Marigolds, the new Sunflower, white and purple Candytufts, *Clarkia*, *Collinsia*, *Nemophila*, not forgetting the old and general favourite, *Mignonette*. If Carnations are at hand, by planting these in a group they produce a bold and striking effect.

FRUIT GARDEN.

The bloom of the choice kinds of Pears against walls to have some protection when frost occurs. Top-dress Raspberries, and let them be well staked.

STOVE.

A succession of *Achimenes* intended to flower late in the autumn to be placed in heat. Pans or broad shallow pots are best for their general cultivation, and as they require an abundant supply of water when in bloom, the drainage should be very perfect to admit of it without stagnating the soil. Orchids will require an increased humidity as the increasing power of the sun will induce a more rapid evaporation; an efficient shading material to be in readiness for use when wanted. Proceed with the potting when necessary, and the general regulation of the plants. Shut up a solar heat, if possible, of 80° towards three or four o'clock.

GREENHOUSE AND CONSERVATORY.

Proceed with the staking and tying-out of plants requiring such assistance. Turn each plant frequently round that it may not become one-sided. Where hardy shrubs are annually forced select the most suitable when removed from the conservatory, and give them some kind of shelter to harden gradually their foliage. From having been previously forced these will bloom earlier than new stock of which a portion should each year be potted to replace such as become useless for further work. Heaths, Epacris, and other hard-wooded plants to be potted as they require it. The most suitable time is after they have done blooming and have commenced a new growth, care to be taken before potting that the whole ball is thoroughly moist, for if potted in a dry state it will be impossible afterwards to moisten it properly without saturating and souring the new soil. Look well after the Azaleas for next year's blooming. Use heat liberally to get their growth forward, and if any shoots become too luxuriant pinch the tops off. Select from the winter stock some strong well-shaped plants of Scarlet Geraniums, Fuchsias, Petunias, &c., to form large specimens for vases, and for planting out singly on the lawn or in other conspicuous situations. Give them their final shift and stake the shoots well out.

PITS AND FRAMES.

These will require daily attention: propagating, pricking off, hardening off, &c., to be continued for three weeks or a month longer, by which time a liberal supply of stock should be provided for all necessary purposes. Attend to covering at night when there is an appearance of frost; to giving abundant supplies of air during the day, and to watering in the morning. The Chrysanthemums when well rooted to be potted off singly into small pots; when they have made fresh growth to be stopped back to three eyes, which should be continued as they progress in growth until the beginning of July, to produce fine, dwarf, sturdy plants. Remove Scarlet Geraniums, Calceolarias, Verbenas, Petunias, &c., to a cold frame that a hardy habit may be induced preparatory to being planted out. The Lilliums now in pits to receive a liberal supply of water, and to be neatly staked. Give them a top dressing of turfy peat, sand, and well-decomposed cowdung.

W. KEANE.

TO CORRESPONDENTS.

*. We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

INITIAL LETTERS (*Rosa*).—Thank you for your suggestion. It is our intention to commence each Number with a pictorial initial letter, and we shall be glad to accept of and publish any pretty designs you or any other of our readers may send us. Of course we shall not engrave them unless they are approved.

HARDY ANNUALS FOR EXHIBITION (*Mene incepto, &c.*).—There are not so many as twelve first-class annuals for competition. *Nemophila*, *insignis* and *maculata*, six plants of each to choose from. *Linum grandiflorum*, commonly called *rubrum*, six plants to pick the best for the show. *Lobelia erinus speciosa*, the best pot plant of all the annuals, although not strictly classed with annuals. *Lobelia bicolor, rosea*, or *Lindleyana*, a true annual, and, like the last, one of the best pot plants among them. *Tropæolum majus*, *Scarlet Gem*, a little improvement on the common colour of *Tom Thumb Tropæolum*. *Viscaria oculata nana*; if you can get it warranted true from a next-door dealer, send not a distance for it: it is a beautiful pot plant, with more and better purple than the original. *Dianthus Heldewigii* and *lacinia*, several plants of each in order to choose from, there being great diversity of tints. *Hummelmannia fumarifolia*: some people recommend this for pots, and we mention it to say it is the very worst of all the annuals; it went out of cultivation in 1823, when *Eschscholtzia* came in its place, and it should never have been revived again. *Eucharidium grandiflorum* and *roseum* make pretty gay pot plants. *Collinsia bicolor*, much in the same style as the last. *Gilia tricolor*, the same looks and value as the two last. These are all that we can think at all fit for pots; but no hardy annual is fit for pots, save to keep over the winter and help to keep a greenhouse gay in the spring, and for doing that none of this selection is good save the last two.—D. B.

ANTS IN A HOTHOUSE (*E. D.*).—Sprinkling guano about their haunts, and watering with ammoniacal liquor from the gas works, will drive them away. Repeat the application if the first is not effectual.

SOWING HALF-HARDY ANNUALS IN A WALTONIAN-CASE (*A Subscriber*).—They should be sown in pots, and all other seeds the same way for that way of raising them. The length of time the seedlings should remain in the case no one can tell, as no two kinds are alike exactly on that point, and every week from the 1st of March to the 10th of May makes another difference as to the length of time the seedlings should remain in the case. All the management required for a Waltonian-case is exactly the same as would be needed in a Cucumber-bed, or a bed made for cuttings and seeds in the spring, and nothing more or less, the only difference being in the mode of getting bottom heat. Now when seedlings are in too hot a place, or are too much confined, they "draw" or get spindly; to prevent which, move them to a cooler place. As the heat for warming the air of all Waltonian-cases must come from the bottom of the case, the bottom part must never be covered with mould to plant in.

CINERARIA (*Bowman*).—Yorl Cineraria has not sufficient character about it. The flower is not large enough, and there is nothing new in the colour.

SPORT FROM FLOWER OF THE DAY (*D. C.*).—Keep the one plant two or three years to see if it will sport farther; at present it is not worth increasing.

ROSES FOR A SOUTH WALL (*Idem*).—We have very great objections to having Roses on the south or south-west sides of dwelling-houses. Such places are by far too dry and too hot for Roses, and the consequence soon is, all kinds of insects and all sorts of nasty remedies to get rid of them. The summer of 1860 was the best summer for Roses in the memory of man—very cool and very moist it was, and that the best Roses like. But how is a Rose against a south wall in a midland county to get a very cool and a very moist climate? or how is it to be kept free from insects and from liquid manure? By drawing drills, as for peas, along a border for Roses in front of the parlour window, and by filling these drills the instant, though the strongest liquid is applied, there is no fear from the fumes. If Roses against the south wall of a house had a dose like that once in ten days, from the middle of May to the end of August, and no more the year round, there would be little to do against insects than what the garden engine filled from the pond could accomplish, and with such strong-growing Roses as the following there would be the least risk and trouble:—*Jules Margottin*, *Lord Raglan*, *Auguste Mie*, *Baronne Prevost*, *Alexandrine Bachmetoff*, *Général Jacqueminot*, which are among the very best of the very free-growing Roses; and if they were on their own roots, or if worked very low on the Dog Rose, or on properly prepared stocks of *Manetti*, they would do second best on very strong land on the Dog Rose, or on very poor land if it suited *Manetti*—not otherwise. But after all is said, all strong Hybrid Perpetuals are never so free from insects as when they are once well established on their own free-willing roots, and we would not plant worked Roses against a house for any consideration.

MUSE MINULUS (*J. F.*).—The Musk Minulus comes from seeds exactly like the little blue *Lobelia*s, and they, the seedlings, do best by the same treatment as is given to these blue *Lobelia*s till they are planted out in May. Musk Minulus will also sow itself in the open ground and come up thick as grass; it will also do to be sown thin as *Mignonette* where it is to grow. It is not the first that always kills it. We know a large bed of it which stood the frost of 1838, and 1841, and every frost since to this day without a particle of shelter, but we ourselves lost it repeatedly out of doors when they were little frost. Some people are not aware that Musk Minulus grows four times faster and stronger in peat than in any kind of loam. We once thought we lost a bed of large half-guinea plants of the Ghent Azalea by this very Minulus. Both came into fashion between 1828 and 1832, and it was in the latter season that we had to send mowers to clear off the Musk in large green hay-like bundles.

GLADIOLI FOR A SMALL GARDEN, AND FOR POTS (*An Old Friend*).—Any will grow in the open garden, and therefore regulate your choice by their colour and price. No one kind is better than another for pots, and the "roots" which are now worth 7s. 6d. a-piece, are not one whit more gay at two yards' distance than *Brenchleyensis*, which should be among the cheapest: therefore Gladioli in pots, or Gladioli in beds, is only a question of the purse. Every one of them is just as well suited for pots as any one you could choose, and every one of them is just as well suited for a bed as any other. Kinds and newness make all the difference in price.

PEARS NOT KEEPING (*Idem*).—All the varieties you mention and many others have decayed prematurely in the past winter and spring now passing. There is scarcely a Pear to be had in Covent Garden Market.

VINES INTERFERING WITH SASHES. (—) Nothing would induce us to rub off the bands from the Vine-rods merely to enable the sashes to open. It would be sacrificing too much of the crop. We should adopt means to put the stems out of the way of the sashes, or have these to open in some way not to interfere with the Vines. We cannot make any more particular suggestion, as we do not know how the sashes open.

RESTORING POTASH TO SOIL. (L. D. W.).—There can be no great difficulty in restoring cheaply to a soil the potash taken from it by a crop of Potatoes. Burn the haulm, and sow its ashes over the ground. That will return the potash it derived from the soil. The tubers do not contain more than half a pound per cent. of potash; so that if you have 25 tons of them from an acre, you need only sow over that acre 2½ cwt. of potash, which would be no great expense. No apology needed to Mr. Jones. We are glad that you think his information is useful.

LAURELS AND HOLLY KILLED BY THE WINTER. (B. W.).—Cut them close to the ground now. Prune your weakly Hollies as soon as you see their first young leaves this month or early in May. The pyramidal Hollies which have shed their leaves are probably killed, but leave them, and plant some climber, as *Felicité Perpetuelle* Rose, to cover their branches.

DWARF CARNATION. (L. T. P.).—We have seen seedling Carnations of various heights, but never any so dwarf as you mention (3 inches). As you do not say whether the habit is healthy, though dwarf, (for it may be the result of disease), or what the character of the flower is, it is impossible to say whether it would be of any value or not, even as an ornamental flower.

GLASS FOR CUCUMBER-HOUSE. (J. Errington).—We should use rough plate glass for the roof, and clear glass for the side and ends. That at 23s. per 100 feet would do very well.

BEDDING. (Gemmato).—If you buy our No. 20, you will find at page 225 full directions and illustrative drawings.

CHARCOAL STOVE IN GREENHOUSE. (A Constant Reader).—Unless the stove has a chimney to carry off the fumes (carbonic acid gas) arising from the burning charcoal, it will be under any circumstances liable to injure the plants; and if you shut up the greenhouse with a chimneyless stove, burning charcoal in it, the plants will be for the most part destroyed.

NUMBER OF PLANTS FOR A VERBENA-BED. (Jack of all Trades).—A Verbena-bed 24 feet long and 5 feet wide, will need about twelve dozen of the very best plants you can buy, or, say five rows and thirty plants in a row, or about 9 inches apart every way. Look over the Verbena-beds and the kinds we reported and criticised for the last two or three years, choose the kinds of Verbenas, and send us a plan of the way you have proposed to plant them. Send the plan to us and we shall have pleasure in pointing out to you if there are any faults in it, and how best to mend them; also, perhaps, suggest an entire alteration which would improve your own idea altogether—not our own idea, for we never give it that way.

NAMES OF PLANTS. (M. F.).—You are quite unreasonable in sending twenty plants for names at one time, and we must make it a rule to decline to receive more than five or six from any one correspondent at a time in future. Nos. 1 to 7, and No. 14, are garden varieties of *Euphrasia*, which we cannot attempt to name; 8, *Leschenaultia formosa*; 9, *Gnida pinifolia*; 10, *Eriostemon myoporoides*; 13, *Euphrasia grandiflora*; 18, *Pittosporum Tobira*; 20, *Acacia cynarum*. (A Constant Reader).—It is *Phlomis fruticosa*, or Jerusalem Sage.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

MAY 21st, 22nd, and 23rd. CHESTERFIELD AND SCARSDALE. Hon. Sec., Mr. Thos. P. Wood, jun., Boythorpe House, near Chesterfield. Entries close May 1st.

MAY 22nd and 23rd. BEVERLEY. Hon. Sec., H. Adams. Entries close May 4th.

JUNE 4th, 5th, 6th, and 7th. BATH AND WEST OF ENGLAND. Steward, S. Pitman, Esq. Entries close May 1st.

JUNE 19th, 20th, and 21st. COALBROOKDALE. Secs., J. B. Chune, and Henry Boycroft, Coalbrookdale.

JUNE 28th. DUFFIELD. Sec., Mr. R. Davison. Entries close June 22nd.

JUNE 28th and 29th. TAUNTON. Sec., Mr. Charles Ballance. Entries close June 14th.

JULY 2nd and 3rd. BLACKPOOL. Sec., Mr. E. Fowler, jun.

SEPTEMBER 3rd. POCKINGTON (Yorkshire). Sec., Mr. Thomas Grant. Entries close August 26th.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., M. J. B. Lythall, 14, Temple Street. Entries close November 1st.

N.B.—Secretaries will oblige us by sending early copies of their lists.

CURRENT EVENTS.

OUR Silver Pheasants laid the first egg Tuesday, March 26th. One has laid every other day, always between half-past five and six in the evening. We have been anxious to give all the information we can to the correspondents who have asked for it, and believing they will have put their birds in some such places as we have described, we will advise them to look well after the eggs. The hens will not always lay in the same place, but for an hour or two before laying they will be seen to hollow out places in the gravel, removing all the large stones. They should be watched then, as the cocks especially are guilty of chipping and eating the eggs. They sometimes leave off laying for a few days and begin again, and if the eggs are taken away they lay two sittings in the season, the second after a short interval. As in all other cases, the fresher the eggs are when put under the hen the better it is, for we have strong belief that has an influence

on the produce; but if a trusty hen cannot be found at the time, the eggs are not spoiled by being kept a fortnight or three weeks. The proof of this is, that a Partridge will lay nineteen, or a Pheasant seventeen. This will occupy three weeks or more, and, of course, some of the eggs must have been laid the full time, they, nevertheless, hatch all. There are rare instances of a Golden or Silver hen hatching and rearing poults, but it is seldom the case. A middle-sized hen, a half-bred Game, is the best for the Silver eggs, she will cover fifteen; but for Golden, a Bantam is better, as they are smaller and their shells are not so hard.

Californian Quails are laying. These are very beautiful birds, bold, cheerful, and familiar. They are free layers. The eggs should be put under a Bantam, and there is no better place wherein to rear the young than an empty cucumber-frame, the young do well in it. It is essential to supply these birds freely with green food at this time of the year, they cannot do without it, and the hens often die for lack of it.

Common tame Pheasants will soon be laying; some few eggs may be laid already, but that is not what we mean by laying, as they will not make a nest. We remind all to make a partial covering over a slight hollow which must be filled with sand or dust. They will drop their eggs in it, and there will be no danger of their being starved or spoiled. The bough of a fir tree, or a havin, will supply all the shelter that is necessary.

During a rapid poultry tour of three or four days at Easter, we have seen some of our best breeding-places, and some of our best birds. We find everywhere there is a dearth of broody hens, and, consequently, we saw but few very young chickens. We saw many that were hatched in the early part of January; but we think we never saw so few February chickens in our lives. The birds had not laid during the hard frost of the early part of the year, and they suffered so much from the severity of the winter, that it took the first fortnight of the milder weather to recover themselves. Many yards that will swarm in a week have nothing to show at present save a few very early birds.

We fancy our summer shows will bring some very good and early chickens, but they will be few in numbers compared with later-hatched ones. Wherever we went we heard the same, that "the oldest inhabitant" never recollected a winter during which birds suffered so much. We have seen a great many Spanish and Cochins which we should fear would be disqualified from the extraordinary appearance of their combs. Some have lost the front, some the back, and some have lost the middle, while in places all have lost their toes. Thank goodness, we can speak of it as past, and if the present mild weather lasts we may look for rapid growth in the chickens, that will now come out daily by hundreds. We must, however, warn our readers not to be tempted to let their hens with chickens run at liberty because there is a little sunshine. Still choose sheltered spots; let the hen be under her rip day and night, and feed generously. If the wind shift to the east, see that your broods are not exposed to it, and under any circumstances do not spare the bread and ale. The chickens should have it three or four times per day.

BANTAMS WITH INFLAMED OVARY AND EGG-PASSAGE.

I HAVE some white Game Bantams, three of which seem perfectly healthy, except on the day they lay, and then they have a very sickly look about the head and scarcely can move. They then refuse food, but drink as much water as they can get; and if I put my hand under the crop and incline the head a little downwards, about half a gill of water will run out of their mouths: they continue so till they lay. The eggs have thick skins on and no shells; after laying them they generally pass a good deal of lime mixed with blood, and seem in great pain. They have the range of large fields, and have a warm, clean, and good roost. I have got seven white hens and two cocks; three of the hens lay these eggs, three have not began to lay at all yet, and one lays good eggs. I have some Brown Red Bantams as well, but they have not begun to lay yet. I have a good lot of Game fowls and Cinnamon Cochins that lay very well indeed; their chief food is Indian corn, and occasionally, a little barley.—THOMAS RADCLIFFE.

[Your Bantams are suffering from inflammation of their ovaries and egg-passages, occasioned probably by over-feeding. Indian corn is very fattening, and excess of fat is the source of a

majority of the disorders which afflict hens. Give the Bantam hens a dessert-spoonful of castor oil, and repeat it each third day until they cease laying shellless eggs, and voiding bloody excrements. Do not feed them with any Indian corn; substitute oats for the barley, give very little even of them; but feed chiefly on soft food, and but little of that. Your other Bantams may be treated in the same way; they do not lay, probably, because over-fat.]

BLACK ROT IN SPANISH FOWLS.

I HAVE been obliged to kill many of my Spanish fowls on account of a disease which comes in the comb, making it turn purple; their feet also swell, they become very lame, and their toes rot off. What is this disease, the cause, and the cure? — A CONSTANT READER.

[Spanish fowls are different from others with respect to their diseases. They are not subject to roup, nor do they catch it from contact with the most virulent cases. By way of compensation they have what is called the "black rot" among old breeders. This affects them in many ways, but always with general wasting, black combs, and swollen legs and feet. The treatment is free—almost constant purging with castor oil, and equally liberal use of stimulants, such as old strong ale, wine, and even diluted spirits. Taken in the early stage this seldom fails to cure, but it is a long process and only worth following with a valuable bird.]

SUNDERLAND POULTRY SHOW.

(From a Correspondent.)

THE county of Durham has just added another show to the list of exhibitions. That at Darlington has, by progressive improvement, attained the position of a first-class exhibition, and the one just held at Sunderland has made a good commencement. Monday and Tuesday, the 1st and 2nd inst., were the days selected for the Show—an arrangement which perhaps injuriously affected the number of entries, from the necessity of sending off the birds of distant exhibitors on the previous Saturday, and thus occasioning a longer absence than many exhibitors would like at this season of the year. Notwithstanding, in nearly all the classes the different varieties of fowls were well represented, and in the prize list appended to this report will be found names which are generally associated with first-class birds. It may be a satisfaction to exhibitors to be informed that their birds were liberally fed, and carefully attended to during the time of the Exhibition.

The Judges were—for Poultry, Mr. J. H. Smith, Skelton Grange, near York; and for Pigeons and Rabbits, Mr. Kinton, Sunderland. The following is a list of the awards:—

SPANISH.—First, E. Brown, Sheffield. Second, J. S. Nicholson, Sunderland. Highly Commended, F. Simpson, West Boldon.

GAME (Black-breasted and other Reds).—First, H. M. Julian, Beverley. Second, R. Tate, Driffield.

GAME (Any other variety).—First, G. W. Langdale, Leekonfield Park. Second, R. Tate. Commended, A. J. Dodds, Halifax; T. Cleminson, Darlington.

DORKINGS (Coloured).—First, S. Burn, Whitby. Second, F. Key, Beverley. Highly Commended, T. W. Hill, Heywood, near Manchester; J. Graham, Newcastle; S. Burn.

DORKINGS (White).—First, S. Burn. Second, T. Younger, Monkwearmouth.

COCHIN CHINA (Buff and Cinnamon).—First, H. Bates, Edgbaston, near Birmingham. Second, W. Dawson, Mirfield. Highly Commended, Mrs. Aglionby, Wigton Hall.

COCHIN-CHINA (Any other variety).—First, T. Stretch, Bootle, near Liverpool. Second, Mrs. Aglionby. Highly Commended, W. Copple, Ecclestone, near Prescot; W. Dawson.

HAMBURGERS (Golden-pencilled).—First, S. Smith, Halifax. Second, R. Tulip, Monkwearmouth. Highly Commended, H. Beldon, Bradford. Commended, J. Shorthose, Newcastle.

HAMBURGERS (Silver-pencilled).—First, J. Dixon, Bradford. Second, H. Beldon.

HAMBURGERS (Golden-spangled).—First, T. Thompson, Wideopen, Northumberland. Second, R. Tate. Highly Commended, J. Dixon; W. Charlton, Newcastle.

HAMBURGERS (Silver-spangled).—First, J. Dixon. Second, H. Beldon. **POLISH (Black).**—First, J. Dixon. Second, T. Leonard, Fulwell. Commended, Messrs. Johnson and Brown.

POLISH (Golden).—First, F. Hardy, Bradford. Second, J. Dixon. Commended, C. Vaux, Sunderland.

POLISH (Silver).—First, F. Hardy. Second, T. Dixon.

ANY OTHER DISTINCT BREEN.—First, J. Dixon. Second, S. Spraggon, Monkwearmouth. Commended, J. Crosland; R. Tate; W. Dawson.

BANTAMS (Game).—First, J. Shorthose. Second, J. Crosland, Wakefield. Commended, H. Ellis.

BANTAMS (Gold and Silver-laced).—First and Second, T. W. Hill, Manchester. Commended H. Marshall, Durham.

BANTAMS (Any other variety).—First, J. Crosland. Second, J. Bayles, Northallerton. Commended, E. Hudson.

SWEETSTAKES FOR GAME COCKS.—First, H. M. Julian. Second, I. G. Park, Whitehaven. Third, H. F. Dodds. Commended, R. Tate.

SWEETSTAKES FOR GAME BANTAM COCKS.—First and Second, R. Moon, Wavertree. Third, G. Allen, Sunderland. (The class commended.)

DUCKS (Aylesbury).—First, T. W. Hill. Second, S. Burn. Highly Commended, R. Tate; R. Abbs; J. W. Sommer.

DUCKS (Rouen).—Prize, R. Tate. (No second.)

PIGEONS.—Almond Tumblers.—First, C. Vaux, Sunderland. Second, E. A. Hargrove, Handsworth, Birmingham. Other variety of Tumblers.—

First, C. Vaux. Second, J. Crawford, Sunderland. **Carriers.**—First and Second, J. Shorthose, Newcastle. **Barbs.**—First, J. Vaux, Durham.

Second, H. Beldon, Bradford. **Pouters or Croppers.**—First, T. Coundon, Sunderland. Second, J. Morrell, Sunderland. **Trumpeters.**—First, T. Coundon.

Second, J. Vaux. **Fantails.**—First, T. Ellington, Woodmansey, near Beverley. Second, F. Key, Beverley. **Jacobins.**—First, T. Ellington.

Second, G. Proctor, jun., Durham. **Nuns.**—First and Second, J. W. Edge, Ashton New Town, Birmingham. **Turbits.**—First, J. W. Lawson, Beverley. Second, E. A. Hargrove. **Owls.**—First, J. Bell, Newcastle.

Second, J. Vaux. Any other distinct breed.—First, C. Vaux. Second, J. W. Edge.

RABBITS.—Lop ears.—First, E. Brooke, jun., Huddersfield. Second, J. Stokoe, Houghton-le-Spring. Any variety.—First, D. Hume, West Hartlepool (Himalaya). Second, Mr. G. Walker, St. Helen's, Auckland.

DORKINGS TOO LARGE TO EXHIBIT.

IN my own opinion Dorkings cannot be too large for exhibition, provided they are well matched for colour, size, shape and form. Now, for rearing fowls for table you do not require large, boney-framed fowls. The young fowls when twelve or fourteen weeks old, if from the produce of these giants, at that age in the summer ought to be fit for the table, but instead of being fit for table there is nothing but frame and bone; but if bred from fair average-sized fowls there would be something far better than a mere frame. Chickens will not carry flesh when young if bred from this large-framed sort. There is a sort commonly known by the name of the Dunghill, in Sussex, which is more prolific for breeding and rearing for table. These fowls I believe to be a cross between the Dorking and the Dunghill, the latter being used in common as a name.

I believe a remark was made in THE COTTAGE GARDENER some few weeks back, that Dorkings could not be too large for table. This I most decidedly believe to be wrong. As I have been a breeder of these giants for exhibition (occasionally), for years, and also fowls for table, I can speak from my own experience. No Dorkings, I am sure, will ever get too fat by running in a farm-yard and moderately fed; but when they are kept and fattened for the occasion, as prize pigs are for the Christmas Shows, I am not surprised to hear the remark, that Mr. Douglas gets his Dorkings too fat, which causes them to have a very sleepy appearance. Poultry may be kept up in good condition without excessive feeding. It is very rare you see now-a-days a pen of prize Dorking chickens purchased at large Shows—viz., at Birmingham and the Crystal Palace, where there are great contests for the championship, which, when they arrive at adult age turn out anything like what the purchaser anticipated at the time of purchase. They are forced so when young, that when they arrive at the age of maturity they are quite worn out, and become useless to any one wishing to breed good stock.

However, Can Dorkings be too large to exhibit? is the question, and I quite agree with the Editors, that Dorkings cannot be too large; but I do not agree in opinion that the giants of Dorkings are so well for the table when young as the above-mentioned sort. I believe mere weight is a very bad thing to try to obtain in Dorkings, and a good, healthy, fair-conditioned bird is by far more valuable for breeding from than an excessively fat one, the chickens from which are generally of a weakly nature.—ONE WHO HAS NOT LOST SIGHT OF A DORKING FOWL.

TUMOUR ON A FOWL'S BREAST.

WHAT is to be done for a Dorking cock which has a kind of tumour just on the point of the breast-bone in front? He is a fine bird of last year. The tumour is about the size of a florin, flat, and much inflamed. There is a crust upon it, which, when picked off in pieces, leaves a raw place under it. He is much reduced in weight, and appears inclined to go rousy from weakness.—E. C.

[The origin of the tumour, probably, has been that the bird has flown down from a height, and, falling on the point of the breast, the skin has been broken, and the introduction of dirt and gravel at the time or afterwards has caused the irritation.

An incision should be made in the skin with a very sharp

knife, the tumour entirely removed, especially any little parts adhering to the bone. The wound should be well washed with cold water, and then sewed up. In sewing, the edges of the skin only must be brought together. If it is attempted to sew it up tight, it causes such discomfort that the bird will not allow it to heal.]

HENS EATING EGGS—SWANS HATCHING.

My poultry-woman informed me just now that some beautiful Grey Dorkings have been detected, when other hens have left their nests, deliberately walking up to them and eating the eggs. Is there any remedy short of death for such disgraceful conduct? I hope there is, as the hens cost me a "mint" of money.

In reply to "J. T.," I beg to inform him that four years ago a pair of cygnets were given to me. Last spring the female produced seven eggs, and hatched them all. One cygnet was devoured, its head only being found, one perished from too early an immersion in the water, and five grew to be strong, fine birds. No extra precautions were taken beyond a quantity of straw laid by the water which the two Swans made into a nest, if such it might be called. When hatched the young birds were fed on barley meal; but soon learned to eat like their parents—namely, barley soaked in water. It was amusing to see the mother with her progeny on her back. Up to a very recent period, when the young ones were taken away, the old male Swan was extremely pugnacious, and I, for one, should not have liked to have thwarted him.—E. B.

[We have found the best way of saving eggs from the unnatural propensities of hens is to place composition ones in the nest and about their haunts. They pick at these till their beaks are sore, and they give it up at last in despair. It is also worth while to watch the hens to nest, and, as soon as they have laid, to frighten them from their nest, and to take the egg. If this is done two or three times they will give up the practice. The sham eggs are not expensive, and are very durable. They can be had at Mr. Baily's.]

HEN WITH STRADDLING GAIT.

Will you explain the cause of a Cochin hen not a year old commencing to walk with a straddling gait; her toes turned in as if cramped; her tail rather on one side; and the yolk of her eggs with white opaque marks or spots in it?—A BEGINNER.

[The straddling gait is caused by difficulty in laying. She must be watched, and when she begins her eccentric walk, a tail or wing-feather must be taken, and, being dipped to saturation in castor oil, it must be introduced in the egg-passage until it meets the egg, which will then be laid without difficulty. It will only be necessary to do this twice, and a dose of a table-spoonful of castor oil will put all to rights. We suspect you feed too liberally, and that the hen is too fat.]

BEE-KEEPING IN DEVON.—No. XVII.

AN EXCEPTION TO AN OLD RULE—A THOROUGH OVERHAUL—INTERVIEWS WITH ROYALTY—A DRONE-BREEDING QUEEN—RETARDED IMPREGNATION, OR TRUE PARTHENOGENESIS (?)—ROBBERS BEES—A COMMUNITY OF TRAITORS AND THEIR DISTRESSED SOVEREIGN—AN EXCHANGE OF QUEENS—TRANSFERRING A STOCK—ADVICE TO APIARIANS.

"EARLY drones, early swarms," is an old and generally a true adage; but as all rules have their exceptions, I have recently proved that this one is not exempt from the common lot. On the 7th inst. (March), I was surprised at seeing drones issuing from one of my stocks; and having caught a couple by way of assuring myself that there was "no mistake" in the matter, reluctantly came to the conclusion that this colony must have a queen capable of breeding drones only. This is the first instance of the kind which has come under my own observation, as confirming what Huber and others have stated with regard to the effects of retarded impregnation, or possibly illustrating Siebold's doctrine of true parthenogenesis in the honey bee.

This discovery having aroused suspicions as to the state of my other stocks, I devoted the remainder of that day and a part of the next to a general examination of my eleven hives. With the exception of one box in which some of the combs were worked irregularly (but in which I could see brood), every

comb was taken out and carefully examined, mouldy ones were exchanged; and, in one instance, in which comb-building had taken place during the winter, a couple of full combs were substituted for empty ones. All the floor-boards were cleaned and dried; whilst in many cases, where internal moisture was present, the bees were transferred from damp to dry boxes. During this thorough overhaul, personal interviews were sought and obtained with all the sovereigns of the different communities, and I had the satisfaction of finding all apparently in good health and capable of fulfilling their royal functions. In one hive only was there no brood—No II.—a weak stock in which many bees had died during the winter; but even this one had a fine Ligurian queen, whose distended abdomen very plainly indicated that with more genial weather there would be no lack of eggs.

The examination of No. XI, from which drones had issued, proved my suspicions to be correct. There was a good deal of brood, all in workers' cells, but showing by their extreme length and convex coverings that none but drones would be forthcoming. The queen herself was a very dark Ligurian, and the only peculiarity in her shape was about the abdomen, which was long, and although not quite so slender as that of a virgin, by no means so much distended as in the perfect mother bee. Her appearance was, however, perfectly symmetrical, and without the least sign of that distortion of the abdomen described by Huber, who says that in retarded impregnation "the extremity remains slender, while the first two rings next the thorax are uncommonly enlarged." Whether hers was a case of retarded impregnation or of true parthenogenesis I am unable to decide. She was bred very late in the season when but few drones were left, and I gave her sufficient driven bees to make up a stock, on the chance of her turning out all right.

A week afterwards—namely, on the 14th March, I found that my weak stock No. II. had suddenly become extraordinarily active, a constant stream of bees pouring in and out of its narrow entrance. Although to a casual observer it might have appeared the strongest stock in the apiary, the real state of the case was at once apparent to an experienced eye—the hive was being plundered in the most systematic manner by a band of robbers! Never before had I seen a colony of bees, however weak, turn traitors to their queen, but in this instance the fact was undoubted; and although the entrance to the hive was so contracted as to be easily defended, no disposition was evinced to protect their home, but all appeared to have basely deserted without fighting, and were probably aiding the pirates in the transport of their booty.

On opening the hive I found all except the unfortunate queen busily engaged in rifling its treasures. She indeed, with hurried steps and shrunken abdomen, traversed the mangled combs in the direst extremity of distress, being entirely disregarded by the marauding workers which appeared intent only upon pillage.* No time was now to be lost, and the hive was at once shut up and conveyed to a dark cellar until the next day. By this time the imprisoned marauders appeared to have made their peace with the outraged sovereign and seemed quietly waiting for "something to turn up."

But what was to be done? The imprisoned bees were much too few to form even a moderate stock; and if the hive were restored to its place in the apiary a renewal of the attack was certain. Up to this time I had entertained the notion of preserving the drone-breeding queen in No. XI. with the view of securing myself against a repetition of the catastrophe of last summer, when a premature massacre deprived me of nearly all my Italian drones in the month of June. Finding, however, that her progeny were, like herself, so very dark as scarcely to be distinguished from the common species, I determined upon her deposition, and the substitution of the forlorn monarch of No. II.

The capture and destruction of the quasi-sovereign having been effected, a piece of perforated zinc was substituted for the crown-board of the hive, upon which was placed the box containing the remaining bees, combs, and queen of the plundered stock. After being in this position twenty-four hours the

* The consummation of a catastrophe of this kind has been thus graphically described by a writer in one of our quarterly reviews:—"Bees, like men, have their different dispositions, so that even their loyalty will sometimes fail them. An instance not long ago came to our knowledge, which probably few bee-keepers will credit. It is that of a hive which, having early exhausted its store, was found on being examined one morning to be utterly deserted. The comb was empty, and the only symptom of life was the poor queen herself 'unfriendly, melancholy, slow,' crawling over the honeyless cells, a sad spectacle of the fall of hee-greatness. Marius among the ruins of Carthage, Napoleon at Fontainebleau, was nothing to this!"

perforated divider was withdrawn, and a complete union effected. Some sharp fighting then took place, and from two hundred to three hundred were soon killed. After the commotion had subsided I carefully examined the dead, and finding no queen amongst them came to the conclusion that she had escaped. Ungenial weather prevented my verifying this conjecture until the expiration of a week, when I had the satisfaction of finding that she was not only fully installed and receiving all the honours due to her state and dignity, but that she had proved herself capable of fulfilling the duties of her exalted position by laying some hundreds of eggs.

As No. II. was a seven-bar box, I readily consoled myself for my misfortune, and was by no means sorry to have it emptied. As all my colonies, with one exception (No. IV.), were now in shallow eight-bar hives, I determined to make an effort to rid myself of the annoyance of having different-sized hives in the apiary. Accordingly I set to work, cut all the combs off the bars of No. IV., and succeeding by paring down and a little contrivance in fitting them into a similar box to those in which my other stocks are located.

Whilst on this subject I may venture upon a piece of advice to my brother apiarists. It is, never to have but one size for stock-boxes, and to take especial care that every bar fits every hive in the apiary.—A DEVONSHIRE BEE-KEEPER.

BEE-HIVES AND THEIR APPURTENANCES.

(Continued from page 18.)

In your last Number I placed in contrast two as a sample of the many conflicting opinions put forth by authors as to bee-hives and their management; to bring under review all the opposing theories would require folio volumes instead of a corner of your Journal. I will, therefore, in the present paper confine myself to throwing out a few practical hints, drawn from my own experience, as to the most suitable "Bee-hives and their Appurtenances" for the due preservation of our interesting favourites, and affording them a fair opportunity of augmenting their sweets.

The more humane system of bee-management being now generally adopted, with the exception of some of the stiff-necked cottager race—a well-regulated apiary, consisting of a combination of both the depriving and swarming systems, the latter acting as handmaid to the former.

The finest description of honeycomb, realising generally double the price of the run contents of common straw hives under the old brimstone plan, therefore the principal aim of the apiculturist becomes the accumulation of the greatest possible quantity of this article free from pollen and brood in separate compartments of the hive, leaving as nearly as possible what will sustain the inmates of the stock, till the return of another season. To accomplish this various expedients have been resorted to.

Amongst the foremost come *doubled first swarms*. The honey-season in our variable climate being usually so exceedingly short-lived, superior completed boxes and glasses are only attainable by this means, unless the locality be so favoured as to produce very early swarms. *The more powerful the colony, while the staple supply of the district lasts, the greater will be the success; and the more expeditiously the work is got up, the purer and more valuable it becomes.*

Another expedient is substituting *end communications* to supers, in lieu of central communications, in every description of hive employed. To this I previously alluded in some remarks on Stewarton-hives, inserted in No. 610 of your first series; and its importance may justify a repetition of some of the arguments in its favour here. The seat of breeding is the centre, where the heat is chiefly concentrated; consequently, on opening a central aperture the temperature is reduced where it is of the first importance to be kept up; and the rank heated vapour is worse than wasted by being dissipated through the super, discolouring the purity of the comb. Besides, the queen usually perambulating the central combs, is much more likely to find her way up into the super through a central opening, where, depositing her eggs, the comb's destruction is completed. Also, by using side openings, the two classes of bees are more naturally kept together, the honey gatherers of the end combs having free access with their loads up into the super, without being obliged to push their way through the crowd of nurses and pollen collectors of the centre. Although the advantages of such an arrangement are so obvious,

and always are acted on in Ayrshire, yet I have never found it noticed in any work, not even in the admirable "Bee-keeper's Manual" of Mr. Taylor. Should that gentleman, before publishing his seventh edition, indulge in a tour through the above county, making the acquaintance of some of the leading members of the Ayrshire Apiarian Society, he would be astonished at the results effected by a good hive and skilful management in rather a late district, and would find an enthusiastic practical acquaintance with the honey bee that would afford him materials to place the seventh edition of his standard work as far in advance of the sixth as this is of the first.

I can corroborate what this author states at page 194 (fifth edition), quoting from Golding as to the desirableness of exchanging or procuring swarms from a distance occasionally, and as to the diligence of the new arrivals, but am not sure if the benefit ends here. I am led to think an infusion of a little fresh blood into the apiary may be of as much benefit as into the cattle or poultry-yards; having known instances of cottagers' stocks in first-rate localities, isolated for miles from others, gradually and unaccountably dwindling away, till they became totally extinct. A new stock procured, flourishes remarkably for a time, and again in a few years as mysteriously and gradually dies out.

Should your valued correspondent "A DEVONSHIRE BEE-KEEPER" be as successful in spreading the Ligurians next season, as your many apiarian readers heartily wish, we may by-and-by hear the result of a greater cross.

My practice is not to retain a depriving hive longer than the second season; a flagging of energy I have usually observed in the third—besides, the purity of the super is apt to get contaminated by the continuous traffic over the dark comb below. Still, an old hive may sometimes be re-invigorated to work wonders by a second swarm being added—the youthful monarch possibly in that case supplanting her aged rival; still, I prefer the surer mode, taking what honey the hives contain before it gets stale, and starting afresh.

This rule does not hold good with regard to swarming-hives; under favourable circumstances old stocks may throw swarms, and prosper for many years, though I by no means approve of the course. Observing recently in a small farmer's garden a straw hive of very venerable aspect, the lower band nearly gone, I had the curiosity to inquire its age of his better half, whose pin money the hives represented. After a little mental calculation she recollected she had quarrelled with the grocer at the village, the "Great Exhibition year," when it would appear she had purchased his *pro indiviso* half, the hive having been held amicably on joint account of both proprietors for some four years previously: here then, was a fourteen years' establishment. On asking why she had kept it so long, and if she had noticed anything odd about the bees, her reply was "she was sweet" to put it down, it had been *sae* lucky, casting twice every year;* but she thought the bees had "gotten *unco sma*."† She was not a little tickled at hearing the latter peculiarity explained. By judicious management, disposing always of her first swarms at good prices, thus getting quit of old queens and bringing round her second, and stocks with a little spring feeding, this shrewd old dame swelled up the aforesaid pin money, so as to incite the jealousy of her neighbours. One, in particular, determined to outstrip her by following exactly the opposite course, thereby thinking to have earlier swarms and greater success; but what with small returns for her light hives, old queens dying, her heavy hives attracting pilferers, and various causes, she never succeeded—confirmatory of what Mr. Fox so well said as to this, under "Bee-feeding" in No 636, which from my own observation I can heartily endorse.—A RENFREWSHIRE BEE-KEEPER

(To be continued.)

THE CANARY AND THE BRITISH FINCHES. THE GOLDFINCH.

The hybrid produce of the Goldfinch and Canary are said to be capable of breeding again. Buffon and Bechstein both mention it as an accomplished fact. M. Hervey states a case in point. "The young ones that come of these mixed birds, often breed others the next year contrary to the opinion of him that has writ the contrary; and this second mongrel race are so beautiful that they cannot be too high rated. Such are those I saw last year in this city (Paris), which were sold for 500 livres—that is, the mongrel cock and hen and three

* Reluctant.

† Very little.

of their young ones. Nature had never produced anything so beautiful in mongrel birds, I will not here describe the variety of colours they were adorned with. I think the mentioning of the price is sufficient for every one to guess at their beauty."

A gentleman on whose information I can rely, informed me that a barber where he used to go to be shaved, at Cromer, had a pair of Goldfinch Mules that bred again, and that he saw the old ones and their young several times.

I have myself endeavoured to breed from Mules, but without success. I had a cock Goldfinch paired with a hen Goldfinch Mule; they built in a room and laid, but a mouse got in and destroyed the nest and eggs. I had a Goldfinch Mule cock paired with a hen Canary, and though she sat, the eggs proved clear. At another time I had two hen Goldfinch Mules that paired and laid with a cock Canary, but their nests were also disturbed. I noticed what Bechstein observes—that the eggs laid by the Mules are at first small, no larger than peas, but increase in size afterwards. From all my experience I have no doubt but that Goldfinch Mules will occasionally breed, but I believe it is of a very rare occurrence.

If the Goldfinch is paired with a turned-crowned Canary, many of the Mules will be crested, which is regarded by some fanciers as an additional advantage.

At the Crystal Palace Show, 1858, Mr. Nicholson exhibited a

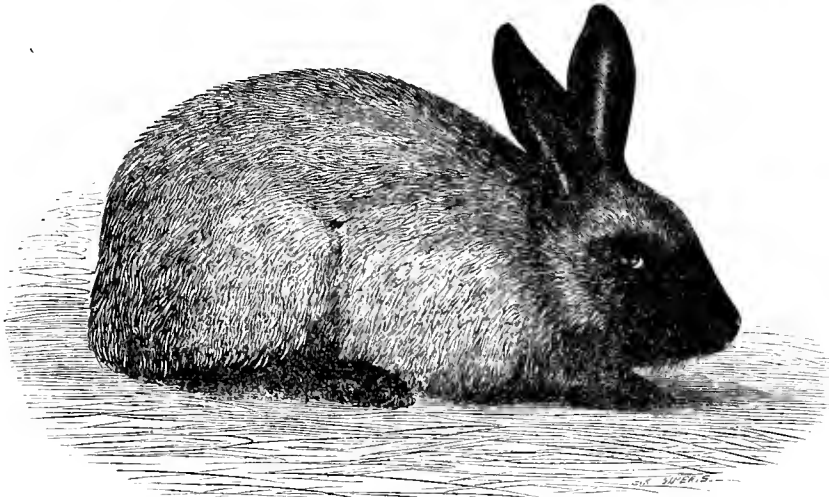
cinnamon-coloured Goldfinch Mule. In 1859, Mr. H. Wardle showed a clear Mealy and also a clear Jonque Goldfinch Mule.

Not only with the Canary does the Goldfinch breed freely, but also with other small birds. Within a very few years Hybrids between the cock Goldfinch and a nestling hen Bullfinch have been exhibited at the Crystal Palace and other bird shows. These are very peculiar, but handsome Mules, of a rich dark plumage, partaking of the character of both parents about equally mixed. To breed them it is necessary that the hen Bullfinch should be very tame, reared from the nest, and while young brought up with Goldfinches; but even then it is rarely that they will make a good nest, and still more seldom that they will hatch and rear their own young in a breeding-cage. When it is found that they have paired, and that the hen is about to lay, it is advisable to cover the bottom of the cage with sawdust, or some such material, to catch the eggs if she drops them, and then hatch and rear them under Canaries.

The Goldfinch has also bred with the Greenfinch. One such Hybrid was shown at the Crystal Palace in 1858, and two in 1859. They were more of a greenish shade of colour, taking more after the Greenfinch, but bearing unmistakeable marks of the Goldfinch.

A Hybrid between the Goldfinch and Grey Linnet has also been exhibited.—B. P. BRENT.

THE RABBIT (*LEPUS CUNICULUS*): ITS HISTORY, VARIETIES, AND MANAGEMENT.



SILVER GREY OR RICHE RABBIT.

THIS species, also known by the name of Chinchilla Silver Grey, is so called from the skin resembling that animal, and for which this Rabbit's skin is sold as a substitute. The name Chinchilla also serves to show the distinction between this variety and the Wild Silver Grey or Silver Sprig. It is in general more developed in form than either the wild or domestic Rabbit. Its fur is dark, and is in part of a silvery grey and part slate colour, approaching more or less to a blackish-brown. The hairs of the fur that are short and soft are of a mouse colour, or pale slate, or bluish; some, the long, firm hairs, are blackish, or a dark slate, and the other long hairs are white, so that the mixture of white, slate, and black varies on different parts of the body. The head and ears are nearly all black with a few white hairs. These white hairs are more numerous on the neck, shoulders, and back; but on all the lower parts, such as the chest or belly, the number of white hairs is greater than those of a blue or black colour.

This Rabbit is bred for its flesh, and still more for its fur, but unfortunately it degenerates in cold climates. There its fur becomes of an iron grey colour instead of remaining silvery, and its skin is reduced in value to only 5*d.* instead of from 1*s.* 8*d.* to 2*s.* 6*d.*

M. Gerard states that it is in Siam, a kingdom of Indo-China, that this race is found in all its purity. It is bred there chiefly

for its fur, which is much valued by the northern inhabitants. Its strong, robust constitution renders the breeding of it easy and it there prospers without degenerating. It is tended by the Siamese about the same as a tame Rabbit.

In climates where the temperature alters its qualities, it requires particular care, if you wish to profit by its skin. Warmth must be secured to it which the winter denies it. The uniform temperature of burrows that suit the wild Rabbit, is equally suitable to tame Rabbits. To procure for them this temperature one should make round their burrows a terrace of sandy earth of about a yard or a yard and a half high, retained from sliding down by a wall perforated with holes on a level with the ground. The Rabbits establish themselves in the bank through the holes, and remain there in all seasons. In winter they only come out to feed. The darker and warmer the burrows, the finer, more silky, longer, and more lustrous will be the fur.

Still, there will be sometimes among them a few females whose fur will be spotted with white. The fur of the males is generally of a finer quality. To obtain from this species a finer fur, castration of the males is in use, which operation should be performed when the animals are about three months old. It not only improves their fur, but increases their size, and renders a quarrelsome animal quite docile, so that these emasculated animals can be kept together in large quantities.

The darker shades are the most prized by the furriers at the present time, and with which they make muffs more particularly; but much depends upon fashion, with which the warrener must not be influenced, but must endeavour to have his stock of a medium colour, neither very light nor very dark.

In consequence of the increased demand for the skins of this species, several new warrens have been formed in the south of France, and these Rabbits are in great demand on the Continent at the present time.—R. S. S.

(To be continued.)

VARIETIES.

CLOTHES-MOTH, a name common to a number of species of small moths of the genus *Tinea*, the larvæ or caterpillars of which are extremely destructive to woollen clothes, furs, stuffed quadrupeds and birds, &c. *Tinea destructor* is one of the most annoying of these insect pests. It is of a satiny buff colour, the wings deflexed when at rest. The larvæ is about a quarter of an inch long, with only a few hairs, white, with a slate-coloured line down the back, an ochreous head, and sixteen legs. *T. tapezana* has the upper wings black at the base, the rest of the wing white. *T. sarcitella* is another very common species, of a silky grey colour; the head, thorax, and base of the superior wings white; the wings folded flat on the back when at rest. The larvæ is covered with scattered hairs. These moths are most abundant in the warmer seasons of the year, but their larvæ carry on their destructive operations even during winter. Guided by instinct, the female moth lays her eggs where the larvæ may find their appropriate food, consisting of substances indigestible to almost every other creature; and the larvæ being furnished with minute but strong and sharp jaws, not only begin to eat as soon as they are hatched, but to cut the fibres of the substances on which they feed into little bits, and to unite them by means of a glutinous silk of their own producing, so as to form for themselves cases, lined internally with silk; and in these they constantly abide, adding to them at the anterior end as their own increase of size requires, and also widening them, by slitting them down the middle, and mending them with additional materials. All this may be beautifully observed by transferring the same moth-larvæ to different pieces of flannel in succession, of different colours. The larvæ of *Tinea tapezana* works its way through woollen stuffs in an arched gallery, carrying its little case with it. *T. pellionella* makes similar tunnels in furs. *T. granella* is destructive to books as well as to grain. The best means of preventing the ravages of moths are perfect cleanliness, frequent inspection of articles, and their exposure to light and air. Spirit of turpentine is used for killing them; the vapour arising from a sponge dipped in this liquid is fatal to such as it sufficiently reaches; they are also killed by the heat of a brisk fire or of an oven.—(*Chambers' Encyclopædia*.)

INDIARUBBER WATERPROOF VARNISH.—I have used a solution of Indiarubber and turpentine for about twenty years as a waterproof varnish for my boots and shoes. I make the application before blacking is put on, or else remove the blacking by water. When the leather is moist, I take the solution of Indiarubber and apply it with a rag, taking care to rub it in; then I put the boot in a moderately warm place until the whole is absorbed. The process is repeated twice, or until the pores of the leather are filled, when the surplus is wiped off. In a few days afterwards blacking may be put on, and the leather will polish well. By this method of treating my boots, I make them not only watertight but also much more durable, and the leather is always kept soft and pliable. I treat every new pair of boots in the manner described, and effect a considerable annual saving thereby.

CURING HAMS.—At a late fair of the Maryland State Agricultural Society, the first premium was awarded to hams cured as follows:—"To 150 lbs. of ham, take 1½ lb. saltpetre, four quarts of fine salt, with molasses enough to make it a paste; rub well on the flesh side; let it lie four weeks; make a pickle strong enough to bear an egg, let the hams lie in it four weeks; then hang and smoke. Two days before removing from the smoke-house, paint with black pepper and strong cider vinegar, after which bag them.—(*Scientific American*.)

THE SUNBEAM'S GRAVE.—Nothing in this vast creation is ever

lost. Individuals may be losers through carelessness, but to the world at large no created substance can be lost. One combination of things is often changed into another, but no ingredient is ever utterly destroyed, for at this moment the created universe does not contain one particle of matter more, nor one particle less, than belonged to it that day it came fresh from the creating band of Him who made all things very good. Never did a sunbeam shine in vain, and therefore no sunbeam that ever streaked this world with light could be finally lost. Yet the sunbeam, lovely as it is, had its grave, and there sometimes for unnumbered ages it has slept in undisturbed repose. What is coal but latent sunbeams, which need only to be ignited to start out again into active life? The sun, when many thousand years younger than he is now, cast forth his radiant beams on the surface of the world, and noble trees of Ferns and other aerogens started at his bidding into vigorous life; they lived, died, and underwent changes which made them coal—yes, coal! and the old sun he did it all. These sunbeams have long been buried in the form of coal; and though by ignition their resurrection-life is but a dim shadow of their early brightness, they are yet sunbeams. We have nothing but sunlight in summer or in winter, think or talk as we may. The fire on our hearths, the gas in our tubes, the oil in our lamps, and the candles on our tables, are all the products of the sunbeam. We kindle them, and in the very act raise the sunbeam from its grave, and send it forth to run perchance a long cycle of changes ere again it rests in such a place as that we have dragged it from.

OUR LETTER BOX.

GAME BANTAM COCK NOT PAID FOR (*E. Fisher*).—See the purchaser in the County Court. You have no other remedy. We have repeatedly warned our readers not to deliver poultry without prepayment to stranger purchasers.

BANTAM PRIZES AT CHESTERFIELD (*R. Baines*).—The Managing Committee of a Poultry Show must regulate their prizes by the entries usually made in the classes. The greatest number of Bantam entries usually are in the Game Bantam class, and the exhibitors in that may fairly expect, that as that class enriches the Society's treasury more than the White and Black Bantam classes, so it ought to have higher awards. We suppose this consideration influenced the Chesterfield Committee, but we do not know.

CHARACTERISTICS OF AVESBOURY DUCKS (*C. S. J.*).—To be winners they must be heavy, but the weight must be the result of large size, and not of feeding. The head should be large, the bill very pale flesh colour or French white, long and broad; free from black spots or yellow or orange shade. The body long and broad between the shoulders. Entire colour pure white.

CALL DUCKS, LENGTH OF INCUBATION.—Having bred "Call Ducks" for some few years, I can assure Mr. B. P. Brent that their eggs are quite as long in incubation as those of other Ducks—a fact I have proved in setting their eggs with those of other varieties.—*T. HARVEY D. BAYLEY, Ickwell House, Biggleswade.*

WATER FOR PARROTS (*A Lady, A. Z.*).—We regret to hear that any one so totally without knowledge of the subject ventured to advise you to keep your Parrot entirely without water! Well might it "cease from talking," and well might it "beat itself against the cage when it saw water!" The bird must have suffered excessively. Always let it have a constant supply of water for drinking, and daily when let out place a soap-plate filled with water on the floor. The Parrot will differ from birds of the same kind we have known if it does not soon indulge in a bath. It is the best preventive of a Parrot eating its own feathers. It should have very little hempseed. The canary seed and bread sopped in water form a much better diet. Of fruits the Parrot usually prefers the cherry.

GOLDFISH MULES (*An Old Friend*).—If you put two hen Canaries to one Goldfish in the same cage, as you propose, the hens should first be put together to become acquainted, or they will quarrel. You will have seen my remarks on Mule breeding in THE COTTAGE GARDENER for March 26th, which will more fully answer your inquiries. The same will apply to Linnet Mule breeding.—*B. P. BRENT.*

TEACHING A BIRD TUNES (*Susanna*).—It is best to teach birds one tune at a time, but much depends on the capacity of the individual bird as to whether he will learn even one tune perfectly, or if he can master more than one. I am not aware that Chaffinches have been taught tunes, but they sometimes learn other birds' songs as well as varieties of their own.—*B. P. B.*

LONDON MARKETS.—APRIL 8.

POULTRY.

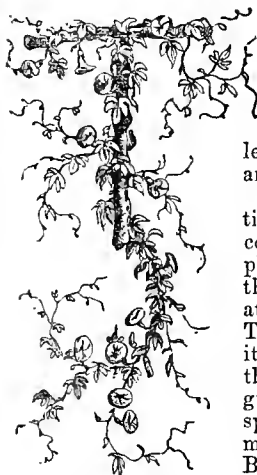
There is still a very small supply of poultry, and were it not the trade is unusually dull, prices would be higher than common.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	6 0	6 6	Guinea Fowls.....	3 6	4 0
Smaller Fowls.....	4 6	5 6	Hares.....	0 0	0 0
Chickens.....	3 6	4 0	Rabbits.....	1 4	1 5
Goslings.....	6 6	9 0	Wild ditto.....	0 8	0 9
Ducklings.....	8 0	6 6	Pigeons.....	0 8	0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	APRIL 16—22, 1861.	WEATHER NEAR LONDON IN 1860.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
16	Tu	Mandragora officinalis.	30.279—30.179	deg. deg.	N.E.	—	m. h.	m. h.	m. h.		m. s.	
17	W	Cardamine amara.	30.229—30.093	60—32	N.E.	—	4 af 5	56 af 6	41 0	6	0 15	106
18	Th	Atragene austriaca.	30.082—30.037	66—34	N.	—	2 5	57 6	20 1	7	0 30	107
19	F	Arbutus alpina.	30.064—29.993	60—32	N.	—	0 5	59 6	53 1	))	0 44	108
20	S	Sun's declin. 11° 37' N.	30.064—29.993	44—32	N.	.01	IV	18 2	18 2	9	0 57	109
21	Su	3 SUNDAY AFTER EASTER.	29.884—29.772	49—25	N.	—	56 4	2 7	38 2	10	1 10	110
22	M	Andromeda.	30.729—29.695	50—21	N.	.07	53 4	4 7	57 2	11	1 28	111
			29.794—29.721	49—25	W.	.02	51 4	6 7	16 3	12	1 35	112

METEOLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 53.2° and 36.4° respectively. The greatest heat, 77°, occurred on the 19th, in 1854; and the lowest cold, 20°, on the 16th in 1847. During the period 142 days were fine, and on 96 rain fell.

EFFECTS OF LAST WINTER UPON PLANTS
IN VARIOUS PARTS OF ENGLAND.

THE winter which has just passed over us, though an exceptional one, was such as returns at intervals, and he will do most wisely as a gardener who learns thoroughly the warnings and lessons which it imparts.

We have several communications upon the subject, and will commence publishing them by placing before our readers to-day the effects that have been observed at the Kew Botanic Garden. This claims priority, not merely by its official position, but because there are cultivated together a greater number of specimens and species in each genus than can be met with anywhere else in the British Islands.

PLANTS THAT HAVE BEEN INJURED BY THE WINTER OF 1860 AND 1861 AT KEW, BEGINNING WITH THOSE ON THE OPEN LAWNS AND SHRUBBERIES.

Pinus insignis, some much injured, and others killed.

Pinus muricata, much browned.

Pinus halepensis, all killed.

Pinus australis, much browned.

The rest of the Pinuses quite green, and in their usual forwardness.

Quercus ilex. All that the varieties of the evergreen Oak indicate is an earlier shedding of their leaves than usual.

Quercus suber, most of the young wood of last year killed.

Quercus glabra, killed, but is alive against a wall.

Cupressus torulosus, much browned, and some appear to be killed. This kind at Surbiton, with Mr. Ross, is hardly browned.

Cupressus Uxheana, suffered to the same extent as *torulosus*.

Cupressus sempervirens, the older plants much browned; but this Cypress is nowhere seen healthy or vigorous on the light lands in the valley of the Thames. The finest plants of it in the country are on the chalk. Dozens of the most healthy-looking at Shrubland Park are reported by Mr. Taylor as quite killed.

Juniperus repens, only one plant dead from some other cause.

Magnolia grandiflora, all its varieties have lost most of their leaves, and the young wood of last year appears to be killed.

Veronica lavendulacea, killed.

Laurus nobilis (the Sweet Bay), suffered much, many being killed to the ground. One of the largest specimens

on the lawn in front of the succulent-house, and much exposed, was killed to the ground in 1823, again in 1838, and a third time in a subsequent year, has only been browned this winter.

Phillyrea rhamnus (the common Phillyrea), many have lost all their leaves and the ends of the young wood; others have escaped with a little browning. Only browned in Surbiton.

Arbutus unedo, many in the low, wet parts of the garden seemed killed; in other parts they all look as green as usual. Some are browned at Surbiton.

Cistus ladaniferus (the Gum Cistus), all killed, and the same at Surbiton.

Buddleia globosa, killed to the ground. It is strange that in the very north of Scotland this plant is seldom hurt by frost.

Tasmannia aromatica, a smooth evergreen, killed.

Torreya taxifolia, one plant dead; but probably from recent removal.

Maytenus chilensis, a rhamnus-looking evergreen, killed; but safe against a wall.

Euonymus japonicus and *variegatus*, killed to the ground, and much hurt against a wall. Some cuttings of it struck last summer in pots, and left to their fate, are not the least hurt. Four fine plants of the green *japonicus*, cramped in small pots for two years in the Experimental Garden, and plunged under an east wall, have not had a leaf browned; but all over the place every other plant of both kinds is killed.

Cerasus laurocerasus (the common Laurel), green as usual, except where the wind nipped the young shoots round some corners, as it always does when charged with the smoke from the factory chimneys of Brentford, which in general is more injurious to evergreens at Kew than the frost.

Ligustrum lucidum, much hurt, but not so much so as at Surbiton. In the Experimental were several very large plants of it which are all killed to the ground.

Araucaria imbricata, all the strong plants—and they might be numbered by the score—are as dark green as those on the highlands of Chili, but a few of the young plants are touched at the end of the shoots—probably as much by the smoke from Brentford as by the frost.

Rhododendrons—all the kinds from Sikkim that have been planted out in the happy valley beyond Mount Pleasant in the pleasure-ground are quite safe; but they were *sub tegmine fagi*—or, in other words, under the shelter of the large Spanish Chestnuts, the fagi of the Mantuan bard. But the scarlet hybrids of the first and second generations from the great Nepal arboretum have suffered considerably, and some of them have lost parts of their branches. All other hybrid *Rhododendrons* are as safe as *ponticum*.

Kniphofia uvaria—the name at Kew for *Tritoma uvaria*, glaucescens of other folks—has suffered severely, and some must have been quite killed at Kew. Two-year-old suckers of it in the Messrs. Jacksons' Nursery at Kingston have not been quite killed to the ground in an open exposed part of the nursery. In the Experimental,

on the grass and slightly mulched, not the least hurt; and in my private garden they began sprouting early in March, and by the 1st of April made six-inch leaves.

Gynerium argenteum (the Pampas Grass), all killed to the ground, and most of the plants were supposed to be killed, root and branch; but some are beginning to sprout.

PLANTS AGAINST WALLS.

Euonymus Hamiltonianus, killed.

Cerasus ilicifolia, much hurt.

Benthamia fragifera, looks seriously hurt, if not killed.

Cistus formosus, killed.

Ceanothus azureus, very much hurt, but not killed to the ground.

Ceanothus papillosus, the same.

Eugenia Ugni, killed.

Eugenia apiculata, only much hurt.

Escallonia macrantha, killed; ditto, *E. montevidensis*.

Arctostaphylos tomentosa, slightly browned.

Cneorum tricoecum, much hurt.

Rosa bracteata (Macartney Rose), quite killed, and the only Rose killed at Kew.

Colletia cruciata, *alias* *Biotensis*, killed outright.

Fabiana imbricata, killed.

Jasminum nudiflorum, much browned. Against my house it has been in bloom from October to March, except during the frost, the flowers only being killed.

Naudina domestica, killed. I have known it killed in the north of Scotland by 15° of frost.

Solanum jasminoides, killed only to the ground.

Myrtus communis (the common broad-leaved Myrtle), many of the branches killed; the same in Kingston, under one fold of mat. At the Experimental a plant 15 feet high in a sheltered recess, and with one fold of frigi domo, is quite safe.

Plagianthus sidioides, killed to the ground.

D. BEATON.

SELF-VENTILATING ORCHARD-HOUSES.

EVERYBODY knows the construction of Davy's safety lamp for coal mines, the wick being surrounded by a wire gauze, of which the interstices, whilst freely admitting the oxygen needful for combustion, are so minute and cooling as to prevent the flame from communicating through them with any firedamp there may be in the atmosphere of the mine. What think you of a safety house on a similar principle for the protection of tender fruit-blossoms, and the ripening of such fruits as do not usually reach perfection in our climate?

Two summers ago we had a severe hail storm, breaking, more or less, about one-half of the panes in the lights of our Strawberry-frame. In the following spring the plants were covered as usual, but without repairing the damage to the lights, which were allowed to remain unmoved till the fruit was nearly ripe. Ventilation was left to look after itself, and as the rain fell it found its way through the broken panes to the plants beneath. The fruit ripened a full fortnight before that in the open ground.

It has occurred to us since, that a modification of the Davy lamp principle might be applied with advantage in the construction of orchard-houses. These erections, interesting and elegant in their results, will never give a profitable return to the labour bestowed until the everlasting attention to ventilation and syringing is superseded. What we want, but which we shall never altogether get, is an orchard-house in which, with only the same attention as is called for in out-door culture, we shall have nearly the result of a more southern climate. Now, suppose the glazing of the roof and sides of an orchard-house so arranged as that between every pane there should be a space large enough to admit free ventilation and the ingress of the rain as it falls, at the same time retaining the summer heat, and excluding the March and April frosts. It may be a matter of lengthened experiment whether these spaces should be an inch or one-eighth of an inch wide, and whether they should occur at intervals of 3 inches or 30 inches, but that they will accomplish a portion at least of what is needed we have little doubt. It may be a question also whether the spaces should be open, or overlapped

by the pane of glass next below them. Our Strawberry plants were quite free from the attack of any insect, and involved no more trouble than those in the open bed adjoining.—FRUIT-EATER.

FLORISTS' FLOWERS.

DEFINITIONS are avowedly difficult things. We have only to try our hand at one—let it be the very simplest—and we shall soon find that we shall probably be as far wide of the mark as he who in defining a man could only get beyond "a two-legged animal without feathers;" and though I have a tolerable idea of what florists' flowers are, yet I should find it amazingly difficult to give a general definition that would meet all and exclude other flowers which might claim the honour. In an authority to which, I suppose, all the readers of this Journal feel bound to bow—the *Cottage Gardeners' Dictionary*, they are defined as "those which, by their beauty and fragrance, power to produce permanent varieties, and facility of cultivation, are so largely in demand as to render them specially worthy of cultivation as an article of commerce." Very well. Now come to the test:—Is the Auricula so easy of cultivation as to be specially worthy of cultivation? There are not a dozen growers for sale in the kingdom. Would a florist allow the Anagallis or Tuberosa to be florists' flowers, even though enumerated in the list appended to the close of the same article? Is the Hydrangea a florist's flower? Would any one call the Rhododendron one? Yet these fulfil the above conditions, and are classed as such in the notice to which I allude. And on what principle is the Hollyhock excluded from the list? it surely has taken a high position as one. There are some, however, about which there is no doubt. Carnations, Chrysanthemums, Dahlias, Pansies, Pelargoniums, Tulips, Roses, Pinks are universally acknowledged as such, and I wish to say something in their behoof; for really the rage for bedding out seems to push them very much into the background.

Any one who has watched the progress of any one particular flower in its advancement towards perfection, must have been struck with the wonderful power that careful hybridising has in not only producing new varieties, but in completely altering the character of the flower. I have, *e.g.*, before me a plate published in the Horticultural Society's "Transactions" many years ago of Chrysanthemums then esteemed, and one published in this month's "Florist," and it would be impossible to suppose a greater difference between flowers even of totally distinct species; while, on the other hand, there seems to be a point which, when it is attained, improvement seems well nigh impossible. I know one ardent admirer of Pelargoniums who gave up in disgust ordering new varieties, because, he said, there was so little improvement or change from year to year.

Again, take Cinerarias. In a particular line of colour it seems impossible to exceed the beauty of some of the varieties grown. A sort named Perfection, let out by Mr. Turner, of Slough, two years ago, seems to me still worthy of its name; in shape, colour, size, and growth one could desire nothing better. On the other hand, Auriculas and Tulips seem capable of great improvement even now. In the former, it is remarkable how few really perfect flowers to an educated eye there are; while in the latter, the manner in which English raised varieties are beating out of the field the old Dutch ones is very remarkable; and one eminent amateur, Mr. Richard Headley, of Stapleford, has challenged all the Tulip growers in the kingdom to show his Adonis, a new flower, against any other Tulip.

When, however, a flower has by hybridising reached the desired point, I by no means say that it will not reward the raiser to continue it; for so sportive are these flowers, that he can never tell what new strain he may hit upon. Thus a few years ago my friend and neighbour, Mr. Banks, of Shalden, the most successful raiser of Fuchsias in the kingdom, raised a flower, of which he said, "I know it will be very hard to beat;" and perhaps in its particular style it is still untouched. But he went on; and any one who saw the immense crinoline corollas in those that received certificates at the Floral Committee last year, will surely be unwilling to say that he has gained nothing by his perseverance. A new strain has been entered on, which may yet produce something more wonderful than any that have gone before. Look again at Pelargoniums. Some years ago there was but one class; then Fancies came on the stage, and, though very badly shaped at first, yet the care of the hybridiser has made them now perfectly beautiful in form

and delicate in colouring. A sport in what was called the florists' class came with a spot in the lower petals. It was immediately caught at, and now we have a distinct class of spotted *Pelargoniums*.

Our lively neighbours over the water, fond of and originators of everything bizarre, have latterly been introducing some novel colours into their flowers. At present the shapes are bad; but French varieties form a distinct class, and before long we may hope for as good form in them as in the other classes. This is an instance within our own memory of what has been done and what yet may be done in any department of florists' flowers.

There is one point at which, I think, all raisers of seedlings ought to aim, and in which much may yet be done—and that is, getting plants of good habit, for the delicacy of many kinds has prevented amateurs from venturing on them. What a glorious thing to get such an *Auricula* as Booth's Freedom with the habit of John Bright—and surely this is to be done. In Carnations the same advance may be made. Every grower of them knows that in Rose Flakes there is nothing to beat Flora's Garland; but she is coy, hard to please, and hence has kept up her price beyond many not one quarter as old as she is. Mr. Headley, of Stapleford, has recently raised a seedling, which obtained a first-class certificate from the Floral Committee last season, and which is figured in Mr. Moore's "Floral Magazine" this month, called *Rosa of Castille*—apparently as good a flower as Garland, and said to be of vigorous habit. If so, though Mr. Headley has been a seedling raiser for so many years, he will even now have added something new.

Again, in Pinks. The raiser against whom none can venture to appear is Dr. Maclean, of Colchester. He might have thought two or three years ago, "I can never beat those I have raised." Well, independently of those which appear for the first time this year, I saw in his garden what will be, I am sure, a favourite—a yellow Pink—at least, a very decided primrose colour when first opened, and in the bud quite yellow. Who can tell whether this may not lead off into a fresh strain altogether of this sweet florists' flower?

These are encouragements which, in the present state of gardening, florists need. What can be to those who have time a more pleasant occupation than raising seedlings? One must fall in with the fashion; but what more wearying than this eternal round of reds and yellows? The same beds, the same flowers year after year, and then only looking at a plant as it may do for bedding—as I heard a lady cry out at *Bougainvillea splendens*, "What a charming contrast it will make for a bed!" I know it is urged against them that their bloom is so short—that you can never rely on more than three weeks or a month. Well, as Lord Palmerston said to Mr. Rowcliffe about the hundred honest men, I think that is a very good length of time. You may begin your year with Pansies and Auriculas, have them in perfection from the middle of April to the middle of May; then Tulips take their place for three weeks or a month; then your Pink-bed comes into full bloom; it is hardly past its best when Carnations and Picotees come in all their grand beauty, to be immediately succeeded by Dahlias and Hollyhocks, and these again by Chrysanthemums, lasting until the dark and dreary month of November; and thus the florist is never without his collection to look over and take care of, and be delighted with. This he may still do, and yet have his garden somewhat in the fashion.

There is an objection sometimes made that they are all so much alike, but I take small account of that. Of course, to those who have no eye for them, they are. A hundred Etruscan vases would just be the same; yet the connoisseur will point out to you variations in each well deserving of minute attention. Let me, then, put in a plea against the prevailing tendency to run them down. Let me urge real lovers of gardening to be no way deterred from trying to add fresh beauties to our lists; and let me assure them, as one who has long known them, that every year adds fresh novelties, and gives hopes of still further progress.—D.

VARIEGATED ARABIS.—As a correspondent inquires about this plant, I may say, in addition to what I recorded in a former article in its favour, that it is as hardy as a wild daisy, the past winter not having tinged a leaf of it. The plant is now (April 5th), in full flower, or nearly so; and though some people object to its blooming, I always allow it to fairly expand all its florets before cutting them off—as, by cutting them early, the plant

makes an effort to send up more flower-stems, and thereby weakens itself. Cuttings or slips strike freely all through the summer months; but the easiest way is to put in a quantity at the same time that *Calceolaria* cuttings are put in, which is from the middle to the end of October. I have several hundreds that were so put in last autumn in rows in a cold pit, with some wooden shutters to cover them during the severe weather, and almost every cutting is now a plant. It is certainly the most compact plant we have for low work; and as an edging for beds on grass has the advantage of looking well all the winter by being left there, which is not the case with *Cerastium tomentosum*, Variegated Balm (or Mint), or *Cineraria maritima*. But it is also useful to improve the appearance of naked beds in winter, when grown anywhere in reserve to plant out in patches in the autumn when the other plants are removed, as it can be planted with a good ball at any time. Even when in full flower it receives little or no injury.—J. ROBSON.

NEW BOOKS.

ARTHUR YOUNG'S FARMER'S CALENDAR.*—Of this work of Mr. Morton we need hardly say it is done carefully and well, and that we cordially commend it to our agricultural readers as a well-executed book for practical reference. But why call it *Arthur Young's Calendar*? Young has been in his grave more than forty years, and he published this work half a century previously. It is true that Young is well entitled to the grateful remembrance of every English farmer, for he was one of the great benefactors of the science, when Coke, and Francis Duke of Bedford, and Davy, and a few other enlightened patriots were laying that foundation on which science and practice have since raised so noble a superstructure; but the progress of knowledge has rendered the larger portion of their labours obsolete; and the works of Arthur Young are certainly not an exception to that conclusion, and no one knows the fact better than Mr. Morton, who has so well re-written the work. Like his editor, Young was not only a popular author, but a practical farmer. Born in the year when *Jethro Tull* died, he seemed to inherit all the genius and indomitable perseverance of the author of the horsehoe husbandry. His characteristics were great zeal, enterprise, and energy, with a copious flow of plain and intelligible language, which the meanest capacity could readily comprehend; and although he possessed few claims to be ranked as a scientific farmer, yet he succeeded by his labours in exciting a general love of agriculture in the upper classes of his countrymen, which has, since his day, never materially subsided.

A memoir of this extraordinary man was published soon after his death by Dr. Paris, his friend and medical attendant, who well described him as having filled a large space in the public eye for a long series of years, but whose name and talents commanded still greater notice and respect in foreign countries than in his own. That he reflected lustre on the age and the country in which he lived can be hardly denied. Of what other philosopher can it be said that at one time he entertained under his humble roof pupils of seven different nations, each of whom had been sent to him for instructions in agriculture by his respective government? "I was lately informed by his daughter," added Dr. Paris, "that the late Duke of Bedford breakfasted at Arthur Young's farm, at Bradfield, on one of the mornings of a New-market race meeting, and was met by pupils from Russia, France, America, Naples, Poland, Sicily, and Portugal." His numerous works are distinguished by vivacity of thought, quickness of imagination, bias to calculation, and fondness for political speculation; and had they been less successful, posterity might, perhaps, have regarded these traits of genius as fatal defects, and as pregnant sources of fallacy and disappointment.

GLASS OF ORCHARD-HOUSE BROKEN BY FROST.

I HAVE the charge of an orchard-house, in the glazing of which there is some serious mistake, for during the winter seven dozen panes of glass were broken in it. The length of the house is 80 feet; breadth, 18 feet 6 inches, glazed with 24-oz. glass, 20 inches wide by 12 inches in depth, the rafters 6 inches deep,

* *Arthur Young's Farmer's Calendar*. Twenty-first edition, re-written and extended, by J. C. Morton. London: Routledge, Warne, & Routledge. 1861.

by 2 inches in width. They are not grooved, but a small slip of wood is nailed down the centre of each rafter, 1 inch wide by three-eighths of an inch deep: consequently, when the glass is properly bedded, it is nearly level with the top of the slip, on which is fixed with screws a water-board, on removing which I always find the slip very wet. The laps of the glass are from 1 inch to 1½ inch. On each side of the house is fixed a small metal stove on the side border, 9 inches by 10 inches; the chimney-pipe goes directly outside, being only 18 inches long. I should be obliged by your kindness in pointing out the defects of the house, and whether these two stoves would have prevented the breakage of glass if properly kept going. I may remark, that last year, when properly attended to, I noticed 12° in the centre of the house.—ALPHA.

[All the data you have given to us do not thoroughly account for the breakage of the glass. The rafters are strong and substantial enough. The depth of the slip we would prefer for such heavy glass to be from one-half of an inch to three-quarters of an inch, or even seven-eighths as you propose; but the shallowness would not cause the breakage. We do not understand about the water-board fixed above the slip. We have just done a house with half-inch slips on the centre of the rafter, and used 16-oz glass. The half-inch slip is quite deep enough for that; but as said above, for your weight of glass we would prefer one-eighth or one-fourth more. No water-board would then be wanted. We presume that the breakage is owing chiefly to two causes: first, glazing too tight, so as not to leave room for expansion and contraction; and secondly, if the laps are from 1 inch to 1½ inch wide, they would hold so much moisture between them, that a severe frost would be apt to make them fly by the ice expanding. A lap of from one-quarter of an inch to three-eighths of an inch would be an improvement. We do not think stoves have much influence one way or the other. We can form no idea of where they are by your description. Do you mean that the stove altogether is only 9 inches by 10 inches, or that that is the size of the firebox merely? It is bad economy taking the pipe directly out of the house. Two iron stoves in such a house, properly managed, ought to prevent a severe frost penetrating. See what Mr. Fish has done with a fair-sized stove, and what he has said about them, and Mr. Rivers' brick stoves in recent Numbers. For such a house the stoves should be placed within 10 feet or 15 feet of each end, and not on the sides opposite each other. The more pipe in the house, the more heat would be given off, but the pipe must not go above 2 yards or 3 yards in a horizontal position. We would prefer an upright shaft, then going through the roof.]

NEW AND RARE PLANTS.

GUSTAVIA PTEROCARPA (*Winged-fruited Gustavia*).

Nat. Ord., Myrtaceæ—Barringtoniæ. *Linn.*, Monadelphia Polyandria. An evergreen stove tree, native of the banks of the river Mana in French Guiana. Flowers white and fragrant.—(*Bol. Mag.*, t. 5239.)

DROSEREA SPATHULATA (*Spathulate Sundew*).

Nat. Ord., Droseraceæ. *Linn.*, Pentandria Tri-(Penta)-gynia. "A lovely species," imported accidentally in the soil of a Wardian case from south-eastern Australia. Requires a warm greenhouse. Leaves rosulate, and flowers purple.—(*Ibid.*, t. 5240.)

CISTUS VAGINATUS (*Sheathed-leaved Cistus*).

Nat. Ord., Cistaceæ. *Linn.*, Polyandria Monogynia. It has been called also *C. candidissimus* and *ochreatus*. Native of Teneriffe. Cultivated in 1779, but until recently lost to cultivators. This is far more beautiful than many newer plants. Blooms in June. Flowers large and rose-coloured.—(*Ibid.*, t. 5241.)

ZAMIA SKINNERI (*Mr. Skinner's Zamia*).

Nat. Ord., Cycadaceæ. *Linn.*, Diccia. Native of Isthmus of Panama. A stove Cycad about 5 feet high.—(*Ibid.*, t. 5242.)

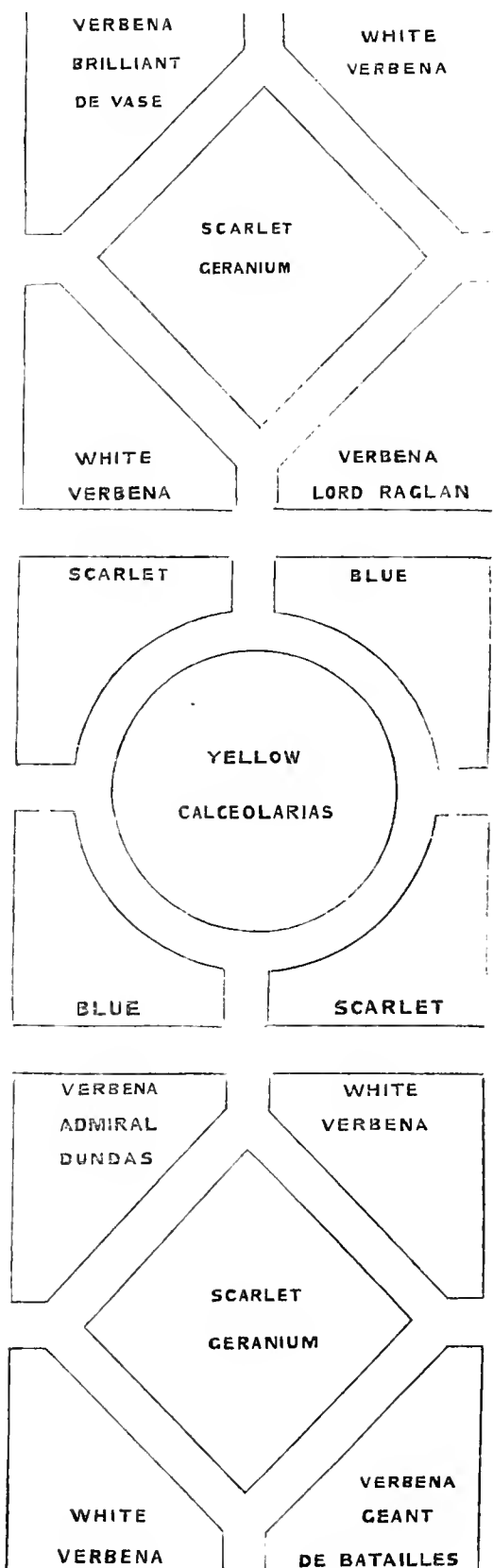
CONVOLVULUS MAURITANICUS (*Mauritanian Bindweed*).

Nat. Ord., Convolvulaceæ. *Linn.*, Pentandria Monogynia. Native of North Africa, near Constantine. Flowers blue; bloomed last October in the open air, in Mr. W. Thompson's garden at Ipswich.—(*Ibid.*, t. 5243.)

GEOMETRIC FLOWER GARDEN.

Will you be kind enough to inform me if the enclosed arrangement of colour in half my garden is suitable? I am

FIG. 1.



quite at a loss how to arrange the diamond-beds, or whether the border should be all one colour—say Flower of the Day.—
A YOUNG BEGINNER.

[Here is the one-half of a geometric flower garden laid out in groups, with cross walks between them. Each group is complete in itself, and planted cross-cornerways, in such a manner as no critic can find fault with. It is an excellent plan for many situations, and for very limited places near large towns, where rents are high, and gardens are more in name than in length or breadth.

Suppose this figure occupied the centre of the grounds to a house rented at £150 a-year, a walk down on each side of it, then a border on the right of one and the left of the other, and then the boundary walls, there would be no more economical way of doing it than this, or something on this model or style. There is not a particle of grass in the whole. But a city man, whether he be rich or poor, carries the same notions of turf into the country which we of the country feel when we see the black-birds with green turf in the bottom of their cage in London—we seem to think the birds could not live in town without it. But nobody seems to think or know that so much grass in such confined spots is the reason why ten doctors assist the pulse

where one might be sufficient if there was no grass inside the garden at all. My own garden is the most open in all Surbiton, yet there is not a blade of grass in it to retain damp, and never shall be as long as I live. That, and not allowing standard trees to choke up the free circulation of the pure air from the Surrey hills, is the very reason that all grades of the inhabitants visit me in my den, except the doctors, and they never come near me, because they have never a moment to spare from visiting other people.

I never counted how many scores or hundreds of such gardens could be made out of one statute acre of land, and every one of them with two rows of tall trees down the whole way; then so many evergreens; then the breadth of a pair of sheets in grass down the middle, which is too damp to walk or stand on for ten hours out of the twelve the year round; but children and the female branches of families cannot resist the temptation of getting on the grass, "it is so enticing," "so nice," or "so like the country." All that is quite true, yet it is also the shortest road to catch colds, and they lead to worse results. The planting of such figures need not necessarily be cross-cornered, as it is here, but that gives the opportunity of a change of planting a second time.—D. BEATON.]

DIAMOND GEOMETRIC PANEL FLOWER-BEDS

HERE, from "A YOUNG BEGINNER," is the first instance of the diamond geometric panel being placed before the British gardener in black and white, as far as we know. Whether as a single figure in front of the drawing-room window, and between it and the public road, or as a sunk panel on grass, or as one of a pair in any suitable position, it is one of the simplest to plant, and may be made most telling in effect by a judicious planter of all the designs that could be got into the same compass.

The requirements of this design demand imperatively that the two centre figures, 1 and 2, be planted exactly alike in colour, and with the same kinds of plants. The framework of our 1 and 2 is represented by the figure 9; it may be all of gold and silver in colour. A band of *Cerastium tomentosum* on one side—the side of the inner walk, another band double the width of the *Cerastium* on the outer side of *Stachya lanata*, and a row of specimen plants of the Golden Chain along the centre, just touching when they are planted; then if there is more space left between the gold and silver than is desirable, insert dark blue or light blue, with a thin line of *Lobelia speciosa* or *Lobelia ramosoides* on each side of the Golden Chain. I saw your demand for *Stachys* anticipated at Pine Apple Place Nursery, and I have no doubt but most of the nurseries have been thinking of what you would be at. The worst of it is the price of such large Golden Chains.

Let us therefore try it again. One side *Cerastium*, the other variegated *Alyssum*, or *Mangles* Variegated *Geranium* trained down, whichever of the two is cheapest or is in stock, with a Tyrian purple along the centre—the good old Orach or the *Atriplex hortensis rubra* of the seed lists; but that is neither rubra, rubescens, nor rubicunda, but pure and simple purple. But put in *Perilla* instead, it will need less looking after; and if it is two shades darker, that amounts to as many degrees in

contrast. If we should all live till next year we might muster up enough of *Arabis variegata* to go all round and round, which is half a Golden Chain of itself, and that too on the outside then to relieve the middle, nothing is so good as Baron Hugel, and *Lobelia speciosa* on each side of it.

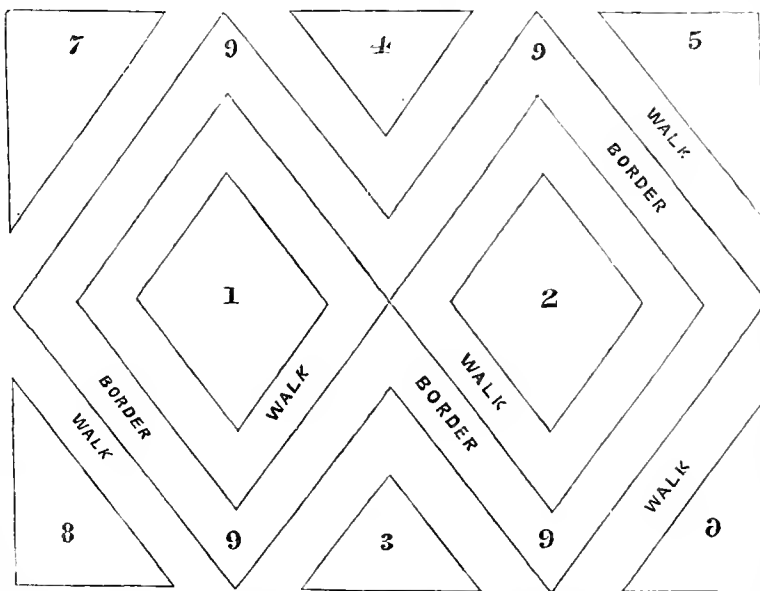
The two diamonds may be anything you like, so they be both the same. What I should put in would be Crystal Palace Scarlet *Geranium*, edged with the variegated *Alyssum*; but Flower of the Day and *Lobelia speciosa* would be just as good,

and yellow *Calceolarias* without an edging equally good. Then if Baron Hugel took the place of Orach or *Perilla* in the frame, I would centre the Flower of the Day with one of them, or the *Calceolarias* with a yellow brownish kind of the same. The opposite beds, 3 and 4, must, of course, be blue or purple, no matter which; but nothing lilacy must go there on account of what is in 9, which embraces two sides of 3 and 4. The corner beds must be planted crossways, if this figure follows immediately after the last, on the grass or gravel terrace—as 5 and 8 the same; plant 6 and 7 ditto. If the figure, or any like it,

is seen from the windows from one end, they should not stand crossways; but the two nearest the eye to be yellow *Calceolarias*, and the furthest end pair Crystal Palace Scarlet *Geranium*.—D. BEATON.

MOORE'S "FLORAL MAGAZINE" for April contains plates of 1, varieties of *Clarkia pulchella*; of 2, *Pelargoniums*; 3, a very artistically executed plate of *Celosia cristata* (aurea), the yellow branching Cockscorn, which is now likely to be again cultivated; and 4, Carnations Rose of Castille, rose flake, and Pre-eminent, purple flake. We do not think that the former is at all flattered, it being a much fuller flower than represented in the figure.

FIG. 9.



TRAINING THE BRITTLE YOUNG SHOOTS OF VINES.

WOULD Mr. Fish in his papers, "Doings of the Last Week," or any other kind friend, inform *Clumsy*, how they manage to tie out the young shoots of their Vines? It invariably happens to him, that as soon as he touches one of them to bring it down to the wires that it comes out of the socket, and makes him stamp his feet and bite his lip in vexation, and bitterly bewail his extraordinary clumsiness.

The other day I thought these Vines wanted tying, "Just as the twig is bent," &c. First shoot got all right. Good! Well done *Clumsy*! Bravo! The very next—got hold of it as softly and delicately as possible, put the mat round it, pull a little. Hem, no need to pull any more, it dropped out. You may guess what a wry face I pulled. I gave over, put mat and knife in my pocket and walked away. I begin to think that I have the worst luck in the world, and that I am, indeed—*CLUMSY*.

[*Clumsy*, indeed! I do not believe a word about these thumb fingers as yet; but congratulate you on the crisp, healthy condition of your Vines, though that is no reason why you should break off their nice fruitful side-shoots in attempting to tie them regularly. Patience in such matters is a great jewel, and the shoot that will not come low enough at once, will come down after a time, when just a slight hasp is put on it to keep it from the glass. In such a case as yours, however, it would be best to lower the main stems of your Vines—say 3 inches or 4 inches, by swinging them to your rod or wire, instead of tying them to it, and this will bring all your shoots low enough to avoid any likelihood of breaking off when regulating them. I recommended this plan to some friends; but it was almost too good for them, for it made them so careless that they never tied out their side shoots at all, but allowed them to pop their noses up to the glass, and the weight of the fruit brought them gradually to the horizontal. This, however, was slovenly, if not "*clumsy*."—F.]

GROWING HORSERADISH.

THERE are many ways of growing Horseradish—we write in answer to "AN OLD SUBSCRIBER." It is always best when from one to three years old; for if the root is much older it becomes woody and hard, instead of succulent and juicy.

Now is a good time for planting it. It grows best in rich sandy loam, but is not very particular as to the soil.

The ground should be trenched at least from 18 inches to 24 inches deep. If poor, give a good coating of manure, and dig that into the bottom of the trench, but do not let it mix with the upper part of the soil, as that would encourage side rootlets. The ground being trenched and levelled, mark it out in rows 18 inches apart, and then make holes in the rows 12 inches apart, and 15 inches deep, and in these drop three-inch pieces of the crowns of old Horseradish plants, with the green part uppermost, or three-inch pieces of any part of the roots, with the top end uppermost. We have found them do equally well.

Then fill up the holes with a mixture of sandy loam and fine coal ashes.

Many of these will yield fine roots the first winter, but they should stand until the second, and not longer than the third winter.

To have Horseradish fine, a small piece of ground should be planted every year.

Though we have mentioned three inches as the size for plants, the smallest bit will grow, and many in taking up merely leave a piece in the bottom of the trench to insure successions.—R. FISH.

NICE, ITS CLIMATE AND PLANTS.

No. 3.

NICE, APRIL 1, 1861.—The past month of March is stated by residents to have been quite of an exceptional character. The mornings and evenings have usually been calm, with strong winds in the daytime. This year, however, winds have prevailed occasionally in the night as well as the day, sometimes rising in the evening and subsiding before morning. From the 25th of February to the 24th of March the weather was magnificent, only one shower of rain during that period, and nearly a cloudless sky, the wind generally from west, north-west and north. On the 25th the wind changed to the east, and since then a

good deal of refreshing rain (which was much wanted), has fallen. The temperature of the month has ranged from 42° at night to 62° in the daytime, the night average being 52°, and that of the day 58½° in the shade.

One great advantage of this place is the dryness of the atmosphere during the winter months, and it is rather remarkable that the summer months should be more humid than those of winter. According to scientific observations published for the last year, it appears that the highest hygrometric mean (taken by Saussure's hygrometer) was in the month of July 63°, and the lowest in the month of February 54°, the average for the year being 59°. The maximum 70° during heavy rain in December, and the minimum 37° on the 5th of March, occasioned by a strong mistral wind then blowing. A similar account, if it could be furnished by any of your correspondents as to parts of England, would be very interesting by way of comparison.

Our ordinary English summer Swallows have now made their appearance here in considerable numbers, and also the Martins. Handsome Swallow-tailed Butterflies, Red Admirals, orange and sulphur-coloured, with several others are becoming numerous. Grape-vine shoots are in many places 6 inches long, and showing the bunches; Figs are out in leaf, with young figs on the branches.

During the month the following wild flowers have come into blossom:—

- March 4. *Antirrhinum nicaense*, large yellow.
- " 6. *Lithospermum purpureo-ceruleum*, splendid blue.
- " 12. *Allium neapolitanum* (fine white-headed Garlic).
Symphitum officinale and *tuberosum*.
- " 16. *Polygala nicaensis*, fine blue.
- Iris pseudacorus* (yellow Flag).
- Chelidonium majus*.
- Coriaria myrtifolia*.
- " 23. *Ornithogalum umbellatum* (Star of Bethlehem).
Hyoscyamus albus (Henbane).
Cistus albidus (showy large Pink).
Muscari racemosum and *M. comosum*.
Leucojum tricolor (Snowflake).
- " 28. *Amelanchier vulgaris*, on the hills.

In the gardens and hedges are the China and other Roses, very fully coming into flower, and in most places looking very healthy, free from insects. Pear trees and Cherries were in full flower on the 19th, also Quinces and Elder on the 24th. A large white *Spiraea* (*grandiflora*) is very showy in the public garden; also Lilacs and tree *Præonies*, Honeyuckles, and Banksian Roses. *Vistaria consequana* (or *Glycine sinensis*), is in blossom on walls and standards. *Asparagus* is now quite common in the markets, also Green Peas and new Potatoes.

The Tomato is much more used in cookery in Italy than in England, and it is grown in considerable quantity for the purpose. The young plants are raised with but slight covering in the open air, and, having been transplanted once, are now nearly ready for setting out in their final quarters.

Oranges are fully ripe and sweet. The general crop has been gathered; but there are many yet left upon the trees, which are now showing blossom for this year's crop. In the course of the present month an Orange flower fair is held in the town. The flowers are quite an article of commerce, and are sold by weight (like hops in England), to the distillers for perfumery, as are also the double Violets, so extensively grown in this neighbourhood.—E. CORLAND.

DECAY OF CROCUS BULBS, AND THEIR PROPER CULTURE.

FINDING that you require to know the nature of the soil, and the mode of culture adopted by me, before you can express an opinion as to the cause of the decay of the parent Crocus bulbs after flowering in pots, I beg to say, that I employ ordinary garden soil mixed with about one-third leaf mould and a portion of silver sand. I drain the pots well, and surround the bulbs with silver sand alone. The pots are kept in a dark cellar for a month after planting, and are then removed to a greenhouse without heat, where the bulbs always flower abundantly. I leave them in the pots until the leaves are quite decayed, and on removing them, always find the original bulbs rotten, and four or five small ones formed.

On removing *Narcissus* bulbs, treated precisely in the same

way, I find each bulb divided into three or four small ones, which do not flower the next year.—H. A.

[Now the matter with your Crocuses is as plain to us as if we had all your bulbs before us. The best soil to pot Crocuses in is the top part of the best piece of ground in the kitchen garden, where it was heavily dunged the year before. No leaf mould, no peat, and no sand for potted Crocuses on any account whatever. It is good to put sand and mixture of soils with bulbs of all sorts in the open ground, and with most of them in pots; but the Crocus, and a score of other kinds of bulbs, are more easily grown under hard treatment, with nothing but good drainage, and a good top soil from a good kitchen garden. That soil has been often and well dunged, and dug, and aired, and mixed, and the excess of dung, or the rankness of it, has been naturally dealt with by the crops on it: therefore, the first four top inches of a piece of good kitchen garden soil are more safe for bulbs, whether they be forced or not, than any compost. The leaf mould and sand in your compost in pots for Crocuses made the soil so very open that in March and April it would need to be watered four times a-day whenever the sun shone; but probably you did not always water even once a-day, and you did right, for too much watering soil that is too open only allows the water to wash all the goodness out of the little balls, unless something good was in the water occasionally. You took more—much more, from your Crocus bulbs than you gave them, and the next year they needed a good fallow, a rest in good soil, and not crowded. The great secret in forcing Crocuses early is to have them in the pots between the first and fifth days of September; if they are potted after the 15th of September, they should not be forced early, or else they should be thrown away when the flowers are over as not good enough to nurse.

All forced Crocuses should be set in the open air as soon as the flowers are over, and in one week after that be planted out at once, *and not with the balls entire*, which is most hurtful to all bulbs so treated. Break every ball of all sorts of Crocuses into three parts at least; plant the roots just as deep as they were in the pots, and no more. Never disturb a forced Crocus, or any forced bulb under the sun, until it has had one season's growth out of the pots, and two seasons if possible; but Hyacinths require three seasons even in good hands.

A Crocus bulb, a Tulip bulb, and a Gladiolus bulb, and many others, never flower but once; then they die, and their offspring succeed them in offset bulbs. That was the natural cause of your finding dead bulbs in your mould.]

MANAGEMENT OF YEW AND OTHER EVERGREEN HEDGES.

I LAST year planted a good many Yews, intended ultimately to form a protection against the north wind. They are fine healthy plants, averaging about 5 feet high, very thick and bushy down to the ground, their bases being, perhaps, 6 feet in diameter. Now I do not care about this extreme thickness at bottom, but want to encourage them as speedily as possible to increase in height and thickness at top. Shall I do any good by cutting away a quantity of these lower lateral shoots? Several of the plants have no decided leader, but may almost be described as bunches of suckers. Shall I increase the vigour and tendency to upward growth of the main stems by cutting out the minor ones?—L. H.

[Your Yew hedge is just 4 feet too much through at the bottom. The best Yew hedge that we have seen was at Boyton, on the other side of Salisbury. It was 35 feet high, and not nearly so much through at the bottom as yours is at 5 feet. There is a natural law about cutting in the boughs of all kinds of evergreens, which can never be departed from in a single instance without doing more or less harm in the long run. It is this—that the lowest boughs all round the bottom of a tree or bush be left longer than those above them, if only the fraction of an inch, and the rule holds good from the bottom boughs to the topmost ones, even of a Wellingtonia. The reason for the rule is this:—If the boughs or branches in any part of the tree or bush are allowed to get longer than those below them, the longest will throw off the drops when it rains, and shade those below from the sun; and when the sun and rain are kept from an evergreen bough it soon languishes, and dies by inches. That is the only reason why Laurels and Fir-trees, and

all the rest of them, get naked below. People allow the top branches to spread over the bottom ones. Now, any one who understands that law, and acts on it, can never go wrong in managing a Yew hedge, or a Holly hedge, or a Portugal Laurel out on the lawn, or a Cedar of Lebanon, or a Juniper, or a Cypress, or any other such plants. The more leaders there are in a Yew hedge, or a Holly hedge, or a Thorn or Barberry hedge, or any hedge whatever, the better, provided that none of the leaders are allowed to get much stronger than the rest, which is secured by stopping, *in the summer*, any of the leaders which are much stronger than the rest.

About the young hedge of Yews which is 6 feet through at the bottom, cut off 18 inches of every one of the bottom boughs on both sides, and the hedge will then be only 3 feet through, and that is quite enough for a fifteen-feet-high hedge. Cut the next boughs a little shorter than the first, the third cut a little shorter than the second, and so on to the top, which at the height of 5 feet should not be more than 6 inches or 8 inches through, if so much, but that depends on the positions of the leaders. Now is the best time for this cutting. At the end of July, regulate both sides again by cutting back such shoots as get over your rule. For the next ten years the bottom should not be allowed to get much wider than the 3 feet. Meantime, Yews would take just as much dung and liquid manure as a bed of celery, and would pay for it much better, by growing three times faster than without that help, which is the only assistance that can be given. Yew trees planted singly will do all the better by having the first foot or 18 inches next the ground freed from branches, in order to let in a circulation of air; and all the leaders, except the strongest or best central one, should be stopped, and after that be kept in constant subjection. But the rule about having the bottom boughs the longest has not a single exception in the whole vegetable kingdom of evergreens. At the height of your trees, if they are single, leave 4 feet across the bottom, and allow only 2 inches more to extend yearly till the trees are 10 feet high; then 6 inches annually for the next six years; after that they will need very little to be done to them. But to get them up quick, ply then well with liquid manure of moderate strength. We planted five hundred miserable little Yews in 1855, in, or rather over, a solid bed of very good rotten dung, just as for a row of celery. They are now finer than your plants, and shine again, but they have had hogsheds of liquid manure.]

REMOVING THE DISAGREEABLE SMELL FROM GISHURST COMPOUND.

THE writer of the interesting article on orchard-houses in your paper of the 9th calls on the inventor of Gishurst Compound for "some agreeable disinfectant" to neutralise its smell. Will you allow me to inform him that by making his solution forty-eight hours before use he will find that the greater part of the smell has passed off? As to what remains, I fear it must be put up with. It is due to the combination of sulphur, to which Gishurst owes much of its efficacy.

Last year a fine pot Plum tree was given me as being incurably attacked by mussels scale. I dosed it over and over again with Gishurst lather worked up by a shaving-brush. The tree has now a fair show of bloom, and its former owner considers it cured; but though it is many months since the medicine was given, owing to its being used fresh some smell still hangs to the bark.—GEORGE WILSON.

CULTURE OF THE GRAPE VINE.

I HAVE been a grower of Grapes both as under and head-gardener for nearly forty years, and the culture of this fruit has always been a favourite pursuit with me. I may venture to add, too, that I have generally been a successful Grape grower. In the following instructions, however, I have not been guided solely by my own experience, but have gathered up information from most of the best Vine cultivators in the kingdom. As a traveller for many years in the nursery and seed business, I had, whilst performing a traveller's duties, the opportunity of calling at most of the best gardens and seeing the management of the Vine under the most celebrated gardeners, who, I can bear testimony, were always ready to give me any information I might ask for, as to the why and wherefore of their practice in certain

methods of culture, in order to obtain such fine fruit as I saw before me. I was also equally as anxious to find out the causes of any failures I met with, whether with regard to missing crops, shanking, spot, deficient colouring, or any other defect the Vines displayed. All these good and bad points of culture I have treasured up, and intend to lay before the reader; and if he pays attention to my statement on the subject, I think that he will be enabled thereby to so manage his Vines as to bring to perfection good fruit and avoid the failures too many have met with.

The Vine is an accommodating plant, easily grown, and very soon bears fruit. In this country it is grown against walls without any protection; in orchard-houses now so fashionable and so useful; in greenhouses over flowering plants; in stores over flowering plants and Pines; and, in what is by far the best mode, in houses especially erected for Vine culture, and hence named vineries. It is also grown to some extent to fruit in pots. On all these modes I intend to give my experience, adding the names of suitable kinds for each situation.

SOIL.—Without that is right, all the other adjuncts will be useless, however perfect they may be. Whoever, then, intends to cultivate the Vine should procure, a year beforehand, a sufficient quantity of the top spit of a meadow or pasture, choosing one the soil of which is neither light nor heavy. Bring away the turf and soil together, and lay it in a long ridge near to where it will be wanted. To every six loads of this maiden earth add one load of half-rotted stable-dung. Put this dung in thin layers amongst the soil equidistant throughout. To these add in the same proportion, half a cartload of old lime rubbish, bits of bricks, and such like; also, a good sprinkling of broken bones—say a quarter of a cartload to the other seven and a half loads of soil, dung, and bricklayers' rubbish. Lay the heaps so that the sun will have free access to every side, and in order to effect that the heap should run from east to west. Let the heap lay for three or four months, and then commence at one end and turn it over, thoroughly mixing the whole of the ingredients of the compost. Do not, however, chop it very fine, but leave it in lumps throughout, so that the air can penetrate into the centre of the heap as much as possible. As a matter of course, no weeds must be allowed to grow on the compost during the twelve months. Turn it over again in four months, and that turning will be sufficient till the Vine-border is ready to be formed.

Whether the Vines are grown in the open air on walls, or in houses, such a compost must be prepared for them.

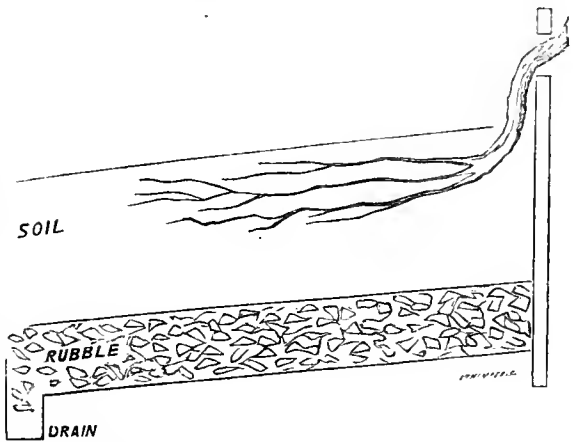
DRAINING THE BORDER.—It is of no consequence whether the situation of the border is low or high, it must be drained. Stagnant water is injurious to the roots of any fruit trees, but more especially to the roots of the Vine. In low, level lands, the drainage should certainly be more perfect—that is, there should be a certain and sure outlet for the superfluous water, and the stratum of stones or brick ends should be thicker.

Let the bottom of the border be above the main drain, and sloping up to the wall. It should be either concreted or rammed down very hard. The drain to carry off the water should be bricked at the sides and covered with stoutish flags, so that, in case of any stoppage from silt or tree roots, it could be opened and cleaned out whenever it required it.

This drain having been made properly, and the bottom of the border made hard, then lay on the rubble evenly all over the border. In high dry lands this layer need not be more than 6 inches or 8 inches thick; but in low situations, even if the border of earth is raised above the level, the drainage ought to be at least 1 foot thick. If the Vines are planted in a border inside the house, that border should be drained also. Level the drainage and run a roller over it. Then, to prevent the finer parts of the soil falling into or being washed into the drainage, cover it over with thin turf, the grassy side downwards. All this being completed, the next operation will be wheeling in the soil. Lay substantial planks to wheel on, and fill it up at the far end to the required thickness, and so on till it is completed. There has been considerable difference of opinion amongst writers as to the depth of the Vine-border. Some recommend as much as 4 feet, others 3 feet, and some 2 feet. Deep borders are certainly very objectionable, because the deep stratum is often so cold and so far out of reach of sun heat. Perhaps if hot-water pipes were run across the border for the purpose of warming it, then a deep border might be useful. However, to be on the safe side I judge the border should be 2½ feet deep. It is the depth I have always made them, and every good grower that I know recommends that depth. The soil being all wheeled

in, the border is then completed. It should at first be 6 inches above the level intended, to allow for settling.

SECTION OF VINE-BORDER.



The accompanying section shows the drain to carry off the water, the rubble to keep the soil dry and the soil above it.

WIDTH OF THE BORDER.—For Vines growing against walls in the open air 10 feet or 12 feet will be sufficiently wide.

For Vineries, Stores, and Greenhouses.—The rule in general should be, that the border should be the same width as the rafters are long. Some good cultivators have adopted the practice of making the border a few feet wide the first year, and adding to it year after year until the Vines have reached the top of the house. Where appearance is of no consequence, such a plan may be advisable and worth a trial; but as most excellent Grapes have been grown where the border has been completed at once, that plan as a general rule may be regarded as at least equal to the other, and certainly for finish and complete neat appearance far superior; and, besides that, more main drains would be required which would be a needless expense.

There is a Vine-border in the garden at Heath Bank, Cheddle, near Manchester, across which are built brick walls, dividing it into as many sections as there are Vines in the houses. The reason assigned for this was, that each Vine could not encroach upon its neighbour's pasture; and also if by any chance a Vine failed, or it was thought desirable to plant some superior or newer kind, the soil could be all taken out of each division, and fresh put in without disturbing those left to grow. I have seen the Vines in that place, and they were very healthy and produced large crops of good fruit, but I never heard that one of them had been removed or had failed: therefore, the usefulness of this somewhat expensive border for the purposes for which it was divided into long brick pits has not been proved. Yet it may be worthy of a trial, especially in conjunction with a heated chamber to warm the border of Vines for forcing early.

T. APPELEY.

(To be continued.)

TRUFFLES.—Do any of the readers know if this singular production can be cultivated, and in what way? Not having had any experience in it myself, I am anxious to learn if it can be transplanted with any prospect of success. Growing deeply in the ground and amongst the roots of trees, it may assuredly succeed if planted in a similar place; but really little seems to be known about this fungus, except, perhaps, in the locality wherever it is grown. But if some one who has noticed its habits will favour us with his observations or experience, it is possible it might be introduced to other neighbourhoods similarly situated and possessing like advantages, and the obscurity or mystery which hangs over this singular article be removed. Any one favouring the readers of THE JOURNAL OF HORTICULTURE with a communication throwing light on the matter, will confer a benefit on them generally, and especially on—AN OLD SUBSCRIBER.

[We shall be much obliged by information on this subject.—EDS. J. H.]



SIX WREATHS OF FLOWERS.

WREATH THE FIRST.

"What fashion will you wear the garland of?"

SHAKSPERE.

WELL, the first shall be of various purple and blue flowers, for sympathising with our Queen—it is a season of mourning.

Let there be *TROPEOLUM DECKERIANUM* from the conservatory, with its downy twining stem, peltate, sinuate, ovate leaves, and its flowers of mingled blue, scarlet, and green.

Let us dwell upon this a little longer. The spur of the flower is scarlet tipped with green, and the five short, wedge-shaped petals are intensely blue. The stems, like those of the Ivy, emit rootlets. It may be grown out of doors in summer, being cultivated in a pot, and trained like other small species of the genus. Its roots are fibrous, and it may be propagated either by seed or cuttings—at least, so says Van Houtte; and he further records that it is a native of Venezuela, whence it was introduced to the Botanic Garden at Berlin, about the year 1849.

As we have been asked "Why Linnaeus applied the title *Tropæolum* to this genus?" we may as well answer here, that when that great classifier of all things natural took upon himself to apply brief names to all the vegetable world, he must often have been sorely perplexed for an appropriate designation. Nor was this genus an exception. He had before him only two species—the large and the small Indian Cress, popularly called *Nasturtiums*; and he fancied, we suppose, in the flowers he saw a resemblance to the helmet, and in the peltate leaves to the shields, of which the Greeks constructed their trophies. We must rub up our classic lore to explain that the *Trophaion*, or Trophy, of the Greeks, was a pile of arms and armour erected by them on the spot where their enemies' flight commenced, *trophè* being literally a turning about. At all events, Linnaeus called these plants *Tropæolums*, or little Trophies, and we cannot but think he might have found a more appropriate name if he had called to mind what our old herbalist, Parkinson, wrote about them. "Some doe reckon this plant among the Clematides or Convolvuli, the Clamberers or Bindweeds, but it hath no claspers, neither doth it wind itself. Monardus and others call it *Flos sanguineus* (Bloody flower), of the red spots in the flowers, as also *Nasturtium indicum*, by which name it is now generally called, and we, thereafter, in English Indian Cresses, yet it may be called from the forme of the flowers only *Yellow Larkes-heeles*."

We must pass on to the next flower in our wreath, and it is *DIPLADENIA ATROPURPUREA*, a beautiful climbing or twining plant for hothouse culture, introduced from Brazil in 1841 by the Messrs. Veitch. It is slender in stem, with dark, shining, evergreen, pointed-elliptical leaves, and flowers of a deep clarett purple colour. The tube of each flower is about 2 inches long expanding conically into a wide throat, and a widely-spreading limb fully $1\frac{1}{2}$ inch across. When first expanded they are agreeably fragrant. Miugled with the flowers of *Stephanotis floribunda*, and *Echites sub-erecta*, the Savannah Flower, Sir Joseph Paxton suggests that they would form beautiful wreathing for the trellis-work and pillars and rafters of the stove. It reaches to a height of 10 feet and even more. Sir Joseph has stated that it may be grown either in a large pot, or in a compartment of the stove-border, in a mixture of sandy loam and heath mould, well drained, and only moderately supplied with water. The stems being weak require pruning in winter, and the side shoots may be improved by stopping during their growth. Two or three years elapse before the plant acquires the ornamental character it really possesses. It then begins to blossom early in July, and produces a profusion of flowers from the axils of the leaves throughout the summer. It is easily propagated by cuttings of the young wood.

Dipladenia is a genus formed by M. Alphonse De Candolle from various species separated from the old Linnæan genus *Echites*. He named the genus in allusion to two tubercles or glands produced at the base of the ovary, from *diplos*, double, and *aden*, a gland.

The third flower in this wreath is *ONCIDIUM COSYMBEOPHORUM*, one of the prettiest of Orchids, with its petals and sepals brightly rosy, spotted with purple, and tipped with yellow; the lip is cinnamon, and the tubercles at its base purple and yellow.

It is on these characteristic tubercles that Swartz founded the name of the genus, *Onkidium*, a protuberance. The specific name, literally "the tassel-bearer," alludes to the form of inflorescence, and is derived from *kosymbos*, a tassel, and *phora*, the act of bearing.

The native country of this species is not known. It was introduced to the Belgian gardens about 1848. It flowers in August.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.—The season must be still telling on the exertions of growers; for although there was a pretty display, yet not so much as one might have expected at this Meeting. A collection of stove and greenhouse plants was, however, forwarded in good condition by Mr. Veitch, of Chelsea; and a small one of Auriculas by Mr. Turner, of Slough. For each of these a Special Certificate was awarded. The former contained well-grown and fully bloomed plants of *Azalea indica*, Queen Victoria, Duke of Devonshire, Princess Mary of Cambridge, Delicatissima (a fine white, blotched and spotted with crimson), Elegantissima, Bicolor, Roi Leopold (a fine thing both in colour and shape), Iveryana albo-cincta and Madame de Rothschild, *Ardisia crenulata* and *Erica hymenalis*. The stand of Auriculas consisted of Souter's Waterloo (green edge, a very circular flower), Conqueror of Europe (grey edge, large and fine), Martin's Mr. Sturrock (crimson self), Hogg's Waterloo (rough and coarse), Dickson's Matilda (green edge, fine truss, and of beautiful colour), Taylor's Glory (fine white edge), Masters' Myfield (pretty blue self) Traill's General Niel (good, green edge), Lightbody's Meteor Flag (good, blue self), Dickson's Duke of Wellington (too full of colour), and Maclean's Unique (fine, bold grey edge).

Amongst the objects sent in for the decision of the Committee was *Campylobotrys refulgens*, a beautifully ornamental-foliaged plant from Chiako, in Mexico, sent in by Mr. Bull, of King's Road, Chelsea: for this a First-class Certificate was awarded. The same gentleman sent *Citharoxylum niveum*, or the Silver Palm, also from Mexico; but the Committee did not consider it to be sufficiently developed for its merits to be judged at the present Meeting. From Mr. Turner, of Slough, came Auriculas Volunteer and North Star, which have before been rewarded by the Committee, and were considered to have sustained their character. Also Rileman, too coarse, and Negress, too rough, to be of any value, and a fine grey edge; the Rev. George Jeans, somewhat of the Conqueror of Europe strain, but very excellent and deserving of the label of Commendation it received; also *Cinerarias Reynolds Hole* (coarse), and Miss Eyles (very pretty and free-flowering). A First-class Certificate was awarded to Mr. Kinghorn for his *Azalea Kinghorni*, of great substance of petal and fine form, though somewhat dull of colour. *Epacris rosea*, from the same gentleman, was not considered good.

Messrs. F. & A. Smith, of Dulwich, received labels of Commendation for two free-flowering, early-forcing *Geraniums*—one a warm orange rose, called *floribundum*; the other a good white snowdrop. As these will evidently force well, they will be very valuable for market purposes and decoration. Messrs. Parker & Williams, of Holloway, sent a pretty free-flowering *Statice*, called *propinqua*. It was too similar to one named *profusa* to be considered worthy of Commendation, and it was suggested that they should be compared together. Mr. Salter, of Hammersmith, sent in some variegated plants—*Symphytum officinale*, the common Comfrey, and *S. tuberosum*, the tuberous Comfrey. For this a label of Commendation was awarded; as there was also for *Veronica chamædrys*, the common Germander Speedwell with variegated foliage—likely to be useful as a rock plant and for edgings. Messrs. Veitch & Son also received a label of Commendation for *Epacris Vesta*, white with pink tips, a pretty and free-growing variety. Some ornamental-foliaged plants, contributed from the Society's gardens, tended to make a nice display in the room.—D.

FRUIT COMMITTEE.—A Meeting of this Committee was held on the 9th inst., C. Wentworth Dilke, Esq., V.P., in the chair. A basket of very excellent Black Hamburgh Grapes, highly coloured, and well covered with bloom, was exhibited by Messrs. Spary & Campbell, Queen's Graperies, Brighton, and a Certificate of Commendation was awarded to the exhibition. Messrs. Wheeler & Son, of Gloucester, sent a dish of Ashmead's Kernel, a delicious little dessert Apple at this late season, and the sort was greatly admired; a full description and figure of this variety were given in our last week's Number. Mr. Rivers brought a

dish of Mela Carla—a delicious Apple of Italian origin—which requires a wall, or the shelter of an orchard-house in this country, to bring it to perfection. The specimens were very fine, but rather over-kept, as they had begun to get mealy; but they had the fine peculiar flavour and aroma that characterise that variety.

Mr. Cole, gardener to Mrs. Silver, Abbey Road, St. John's Wood, exhibited a nice collection of Apples, which was awarded a Certificate of Commendation for the excellent manner in which they had been kept. Among them were Kerry Pippin and Ribston Pippin; both, however, without flavour, but well kept. A dish of very excellent Elruge and Pitmaston Orange (misnamed Hunt's Tawny), Nectarine was received from Mr. Gardiner, Eington Park, near Stratford-on-Avon. Their flavour was excellent, and as they exhibited great skill in having been produced at so early a period, a Certificate of Commendation was awarded to them. Mr. Cant, of Colchester, exhibited excellent specimens of Blenheim Pippin, and a sort called Spice Apple, which was uncertain in flavour, and was requested to be sent again another season. F. J. Graham, Esq., of Cranford, brought specimens of Bedford Pippin, an excellent late dessert Apple raised at Bedford, but this season it is not equal in flavour to what it usually is. Mr. Graham read an interesting paper upon an insect which infests the fruit of the Pear, and which is supposed to be hitherto undescribed. Provisionally, Mr. Graham called it *Musca Pyri*, as it belongs to the tribe Muscidae. The thanks of the Meeting were given to Mr. Graham, and the paper ordered to be published in the "Proceedings."

DANDELION AS A SANATIVE.

IN consequence of Mr. Hardy's suggestions last year in your valuable paper respecting the use of the Dandelion as a salad, having acted on his benevolent advice, I can say that it is the best alternative diet used; but I find that late in the summer the plant is not sufficiently crisp to be easily masticated. Will he, or some other kind contributor of yours, be so good as to give some instruction, so that its texture may be made more agreeable during summer and autumn? I would prefer having my medicine-chest in my own garden; and I believe the value of the Dandelion requires only to be more generally known to be extensively used as a substitute for other salads.—J. L.

[Your correspondent "J. L." justly complains of the toughness of the Dandelion leaves for mastication in summer and autumn. In fact, they are not so sufficiently crisp then as could be wished for—especially for aged persons who have lost their teeth—except they are bleached as lettuces, endives, chicory, &c. In summer they should be in a shady compartment of the garden; but if they are frequently cut off, young tender sprouts will soon re-appear—it may be, several times in a season. They are acknowledged by most people to be more agreeable to the palate (not so bitter) chopped fine, and mixed with lettuces; and I for one relish them best with vinegar and sugar with only plain bread (not new).

To bleach them, however, which renders them more tender, various plans may be devised and propounded by other correspondents, which will assist the inquirers of your valuable Journal. My own directions are to take the roots up in autumn, or even in spring, and place them in a dry and dark cellar; or the gardener may place them in a spare darkened corner of his tool-house, or greenhouse, covering them slightly with leaves, dry mould, or coal ashes. They will thus bleach nicely and be crisp, and will be accessible at all times, even in winter, when the leaves cannot be obtained abroad. The coarse leaves which I recommend to be frequently cut off need not be wasted; for either they or the roots, separately, or both together, may be roasted in a small oven, and these, if powdered or broken small, will make an excellent and agreeable beverage as a substitute for coffee; and still better if mixed with it instead of chicory.

In short, use Dandelion how we will, it will be found an excellent restorative for cases of liver complaints, lowness of spirits, indigestion, and many other disorders following in train from a torpid liver. That it restores the appetite and braces the nerves, I my humble self can give ample testimony. A gentleman friend of mine assures me that his sister makes excellent "beer," sparkling and nourishing, with the decoction of roasted Dandelions. Finally, I can speak positively to the good effects from them, and have many testimonials of their good medicinal properties, both from the leaves as a tea and a decoction of the roots, or of either.

Note, as a salad it should be eaten only with plain wholesome stale bread, and not with bread and butter, or greasy meats—these things only indulge the appetite. Moreover, strong drinks also counteract the medicinal properties of Dandelion, if not of all other food in no small degree. Pure water which has been boiled is all that is really necessary to be drunk (barring medicines properly administered in small and frequent doses) for the sustenance of man, and to invigorate his strength, and prolong his life.—A. HARDY, *Seed Grower, &c., Maldon, Essex.*

FUMIGATING WITH TOBACCO-SMOKE

A GREENHOUSE COMMUNICATING WITH PARLOURS.

"F. G. H." would be much obliged by the Editors informing him how effectually to smoke a greenhouse infested with green fly. The greenhouse is 30 feet by 9 feet, a lean-to, and two sitting-rooms opening into it.

"F. G. H." is very anxious to know how to keep the smoke from entering the rooms. He has nailed up carpets and sheets without effect; and last night he nailed up against the doors (double doors of plate glass), wet blankets, but these did not keep the smoke out. He uses a portable stove and a pound of Coventry tobacco paper. This the gardener blows with a pair of bellows. It takes him five minutes, and the greenhouse is then full of smoke; but also, unfortunately, in ten minutes after the sitting-rooms adjoining are redolent of tobacco-smoke, and, worst, of all, the fly is not killed in the morning. The plants are too numerous to move if he had another house to smoke them in, which he has not; and this smoke entering the house is an insuperable objection to a greenhouse again being attached to the house, if it cannot be prevented entering it.

[In such a place we would prefer the best shag tobacco—say six ounces at one time, and repeat the dose three nights afterwards; but we can offer no practicable suggestion, under present circumstances, how the smell of the smoke can be excluded from the rooms. In all such cases the plants, whenever one or two are infested, should be moved out. If you have a spare room, or a close shed about the place, we would undertake to clear the plants out of such a house in no great time and smoke them there; but the great thing is to prevent a general smoking by taking a plant out as soon as a fly is seen on it, and, having a rough box knocked up which you can keep for smoking purposes, smoke that plant at once. This is by far the most economical plan. Our box is about 4 feet in height, 5 feet long, and 4 feet wide, with a hipped roof, and we have moveable shelves in it for small plants. We either burn the tobacco in it in a flower-pot, or insert the tube of the fumigator through a hole in the door. We have two or three squares of glass laid in on the top, that we may see how the smoke goes on without opening the door. With a little contrivance any old box, packing-box, &c., might be turned into such a smoking-house, and all smell in the sitting-room avoided. A small pinch of tobacco will do in such a place. If the plants are not extra large, the whole from such a house might soon be smoked in turns. Any small close shed or room would just answer as well, only the larger the place the more the tobacco needed. The great thing in smoking is to prevent the smoke reaching the plants in a hot state. If you still object to the smell of tobacco smoke, try killing the green fly by syringing with Gishurst Compound. This has a disagreeable smell, but you will see to-day how the manufacturer of the Compound says that smell may be removed.]

CUCUMBER PLANTS NOT PERFECTING THEIR FRUIT.

Will you oblige "J. B." by informing him why Cucumbers will not swell off? The fruit shows at every joint and grows to the length of 5 inches or 6 inches, and then goes off. He keeps them to a regular heat of 70° by night and 80° by sunshine. "J. B." has grown Cucumbers for fifteen years, and never saw the like before. No plants can look more healthy.

[Let your temperature fall to 65° at night, or even a few degrees colder by leaving air on, and keep the plants rather thin of leaves and shoots. More sap then will be thrown into the fruit. See, also, that the bottom heat is not too strong—not above 85°. We hope the above will help you, but some of the best gardeners could not get Cucumbers to swell last year, as Mr. Fish has stated.]

POMOLOGICAL GLEANINGS.

GROS MAROC GRAPE.—This is likely to prove a valuable new purple Grape. Its berries are oval and very large; bunches shouldered and very large. Its habit is most vigorous, with large woolly leaves. It ripens with the Black Hamburgh in a house without fire heat, and will hang a long time on the Vine, or be kept with great ease in bran, so as to form English Raisins (as mentioned by our correspondent "R."), as its skin is thicker than the Black Hamburgh. Its flavour is remarkably rich.

GROS COLMAN GRAPE.—This is a round purple Grape with very large berries and bunches. Its leaves are large, and its habit coarse and most vigorous; skin thick and flavour inferior. It is, however, a very showy Grape, and like all thick-skinned Grapes it will hang a long time on the Vine.

MUSCAT TROVÈREN GRAPE.—A variety of the White Frontignan with very large berries and bunches. Though the flavour is less rich, it promises to be a very desirable sort.

EFFECT OF DRAINAGE ON GRAPES.—I have always noticed that here in Missouri wherever the Grape succeeds, it is upon land that has thorough natural drainage; and if any part of the vineyard is in a spot so situated as not to have good drainage, the Grapes will generally rot while the balance of the vineyard is perfectly sound. We can also see the same thing exemplified by noting the results of different years, and I think this has been one of the best to prove my opinions to be correct; for while in ordinary seasons more or less Grapes are affected by the rot, this year they have been totally exempt therefrom, and the reason is evidently the unusual dryness of the season and but very little dew having fallen after the 1st of June.—(*American Gardener's Monthly*)

ORCHARDING IN CALIFORNIA.—In 1858 we sold 480,000 lbs. of fruit, mostly Peaches and Nectarines. Our nett profits were about 50,000 dols. In 1859 we sold as follows:—Peaches, 841,300 lbs.; Nectarines, 121,000 lbs.; Apricots, 25,000 lbs.; Grapes, 25,000 lbs.; Apples, 15,000 lbs.; Pears, 5000 lbs.; Quinces, 2500 lbs.; Plums, 1000 lbs.; Cherries, 200 lbs.; Figs, 474 lbs.—total, 1,046,475 lbs. The fruit netted about 8 cents per lb., 79,000 dols.; gross 100,000 dols. This year (1860) we have sold about 2000 lbs. of Cherries, at 60 cents per pound; 2000 lbs. of Plums, at 60 cents per lb.; 40,000 lbs. of Apricots, at 20 cents per lb.; 3000 lbs. of Apples, at 25 cents per lb. We have yet to pick 10,000 lbs. of Apricots, 100,000 lbs. of Apples, 10,000 lbs. of Plums, 800,000 lbs. of Peaches, 100,000 lbs. of Nectarines, 30,000 lbs. of Grapes, 800 lbs. of Figs, 3000 lbs. of Quinces, and 6000 lbs. of Pears—total to pick, 1,057,000 lbs.: picked 47,000 lbs.; total, 1,104,000 lbs. This orchard contains about 40,000 trees.—(G. G. BRIGGS in *California Farmer*.)

WORK FOR THE WEEK.

KITCHEN GARDEN.

As soon as the seed-leaves of Cabbages, Cauliflowers, &c. appear above ground sprinkle soot or wood ashes over them for the purpose of preventing the attacks of slugs, &c. It should be frequently repeated until the plants are 1 inch or 2 inches high. **Beet**, sow a full crop of the Red towards the end of the week. **Capsicums**, repeat the plants of the larger varieties intended for turning out next month. **Cardoons**, the seed may now be sown in trenches where the plants are to remain; the trenches to be 4 feet apart, and a few seeds dropped in at intervals of 18 inches or 20 inches. **Cucumbers**, keep the shoots regulated, as on this particular their fruitfulness will in a great measure depend. **Mushrooms**, in making beds to produce through the summer a portion of loam should be mixed with the dung: this will give greater solidity to the bed, which will in consequence produce more fleshy Mushrooms. **Marigold**, sow, where it is required for kitchen purposes. **Nasturtiums**, sow some seed in any out-of-the-way place where the plants can do no injury by their rapid growth. They will be useful for pickling. **Peas**, continue to earth up, and stake them. After staking, the ground to be forked up between the rows, and where **Spinach** intervenes it will also be benefited by the operation. **Rhubarb**, sow seed. **Turnips**, make another sowing, to succeed those sown in the middle of last month.

FLOWER GARDEN.

Thin out early-sown annuals in open borders, leaving from four to six plants in each patch. The scythe will now be required upon the lawn once a fortnight. See that the directions

in the late Calendars are brought to a close as speedily as possible; for a busy season is fast approaching for the performance of other operations which should not by any means be interfered with by work which ought to have been finished a month ago. Sometimes the action of the wind on the flower-stems of Tulips will cause a cavity in the soil immediately around them, such to be carefully filled up, and the surface of the bed to be kept free from cracks and weeds. Propagate Pansies from slips and cuttings. Make another sowing of Sweet Peas, to keep up a succession of bloom. Climbing annuals—such as the Canary Creeper, *Convolvulus major*, *Cobæa scandens*, *Ecermocarpos*, *Maurandias*, *Lophospermum*, &c., to be sown in pots two or three seeds in each, and when strong enough to be planted to cover trellises, rustic work, &c. Some of these required to be sown early as previously directed.

FRUIT GARDEN.

Remove all the foreright shoots from Apricot trees, also a portion of the side shoots; but endeavour to distinguish those that are likely to form short fruit-bearing spurs as being the best to retain. Early and frequent attention to be given to the disbudding of fruit trees; for, if neglected, there is a probability of being under the necessity of taking off more shoots at one time than is proper, by which such a check is given to the flow of the saps as to cause the fruit to stop swelling, and eventually to drop off. Disbudding is the art of preventing the development of useless buds at the expense of those that should be preserved; it must be more advantageous to check an unnecessary shoot at an early stage than to wait until it has exhausted the tree of a portion of its sap, and then to be removed at the period of its full development.

STOVE.

The plants here are now progressing fast, and will require attention in shading during bright sunburst, and gradually increasing the humidity of the house to keep pace with the increase of solar heat and light. If creepers are trained under the rafters a little management in regulating them will save much trouble with the external shading, and add much to the internal appearance of the house. See that *Thunbergias* and other such pretty climbing plants have plenty of pot room, and trellises applied.

GREENHOUSE AND CONSERVATORY.

Camellias that are now freely growing to be supplied with an increase of heat and moisture, and to be slightly shaded in bright weather with thin canvases or netting. Stop in good time any strong young shoots of Orange trees. Pelargoniums to be staked and tied out. Give to the plants set with bloom-buds a little clear liquid manure occasionally, with a liberal share of growing room on every side. The young stock to be shifted forwards as they may require for a succession. Plants that have been growing for some weeks, particularly young ones, will now require to be stopped, more or less, in order to make them bushy. No sticks to be used to give form to a plant that can be managed by pruning and stopping.

FORCING-HOUSE.

Another successional sowing of *Amaranthuses*, *Balsams*, *Cockscombs*, &c., to be made, and those previously potted to be encouraged to make a vigorous and sturdy growth.

PITS AND FRAMES.

As the planting-out season approaches take every opportunity of hardening off the entire stock, that the change to complete exposure may be gradual. Attention to be paid to the timely stopping of straggling growth in order to have bushy plants. Turf or temporary boarded pits covered with double mats are very useful at this season of the year.

W. KEANE.

DOINGS OF THE LAST WEEK.

Sowed *Parsley* in a well-aired border, in rows 15 inches apart, and covered with light soil. Sowed *Spinach* between rows of Peas. Peas planted out are doing well. Those first sown in the open air are doing only so and so, which caused me to sow some, even of the Marrows, in boxes, and plant them out when 2 inches high or so, which are looking well. In such cold, wet springs, it is a point gained to get the ground extra sweet; and though the transplanting takes extra time, I believe the produce is earlier and better, and seed is saved. Thinned

Turnips and *Lettuces* sown under protection, and made the first sowing of Turnips in the open air. From this time until the last autumn-sowing of Turnips, we sow Turnips and Radishes always together, making the shallow rows 1 foot apart, and sowing Turnips in one row and Radishes in the next. The Turnip-rows are, therefore, 2 feet apart, and the Radishes are either used or pulled out of the way by the time the Turnips need all the room. Sometimes our chief of the kitchen will be content, in early spring, with white Turnip Radishes instead of early white Turnips, which is a great advantage, as for different purposes the difference can scarcely be detected, and Radishes may be easily had several weeks before Turnips. A nice little Turnip in May I always consider to be worth 6d. Turned, chopped, and dug ground in readiness for Carrot seed. Planted *Garlic* and *Eschallots*, late enough. Pricked out young *Lettuce*, and put pots that had grown Potatoes, now emptied, over *Sea-kale* in the open air, and placed a little litter over them to exclude the light. The heads covered a fortnight ago, are now coming nicely. Removed old sashes from earth-pits over Potatoes, Geraniums, and so forth, and substituted some Nottingham netting, as it will not be used for the walls this year, unfortunately.

Removed *Strawberry* plants when done fruiting from the different houses, and took them altogether from the Vine-pits, as the watering tended to make the pits too damp, as the fruit of the Vines was setting. Strawberries on the whole have produced most abundantly—better than I expected from the size of the plants, fully proving that, provided the buds are fairly ripened, the mere size of the plants is of less consequence. For many years I used to have for the main crop one plant in what is called a 32, or a six-inch or seven-inch pot; but this season, owing to the smallness of the plants, I used two for that size, and I should almost be inclined to do so again as they have done so well. On the other hand, there are still some left of Keens' Seedling, single plants, in 48-pots, which I like for early work, which have been and still are great pictures. With these I generally succeed well. I have friends who succeed better than I have ever done with Prince of Wales, British Queen, &c. Were a tradesman sure of the market, a fine sum of money might be made from Strawberries at from 1s. to 2s. per ounce. It is a good thing for gardeners when their employers patronise Covent Garden at this season of the year. If they never do so, they are very likely to use a basket of Strawberries in March with as little consideration as to how their gardener provides for them, as if they were supplied with a similar dish at the end of June. It would often tend, too, to put a stop to the cuckoo cry, "Oh! I get nothing from my garden in comparison to the outlay." Thinned the Sweetwaters in Vine-pits, removed plants from first vinery, thinned out Fuchsias, &c., in the second, and placed in the shade beneath the Vines *Achimenes* fresh potted.

For want of room placed these in six-inch pots for the present. They always do best when sprung in boxes or pans previously, for then you can single out plants of similar size, or, if anything, the highest and strongest for the centre, and using six or eight plants for such a sized pot, and potting again if deemed advisable. *Gesnera zebrina* treat in the same way. Shade and keeping the foliage dry are the chief elements for securing fine foliage; and the shade of Vines is just the thing for it, as after the Vines show flower it is rarely they ever see the syringe afterwards. The large Fuchsias have been moved to the late vinery, and placed on the ground near the back, with shelves of Strawberries, &c., above them. To prevent any check to the forward Fuchsias, less air is given at the back of the house, and this also helps to bring on the Strawberries; whilst by admitting plenty of air in front, the Vines that are tied longitudinally there will be kept cool, and so will the Pelargoniums on shelves and platform, before being moved to the conservatory. Gloxinias repotted and growing were placed in vinery under shade of the Vines. Camellias and Azaleas need more water on fine days; and Pelargoniums, &c., must be guarded against green fly by smoking. A few were affected before being noticed. Moved lots of seedling annuals in pots into a colder place under glass, that they may be kept stubby before being thinned into patches; also Tomatoes, Camellias, &c., to be treated in the same way. And among the flowering annuals such climbers as *Cobæa scandens*, which must be potted singly; various *Convolvulus*, and *Tropeolum pelerinum*, and others, and Castor Oil plants, chiefly for fine foliage. I sow few annuals out of doors at once, unless short-lived ones in patches, as *Collinsia bicolor*, the prettiest *Godetias* and *Cenotheras*, &c., and of all modes of sowing these and annuals in general in the open ground, in patches, I prefer placing a garden-

pot over the patch until the seedlings are up, and removing the pot first partially and then altogether during the day, and then covering up at night for a time until the weather can be depended on. When I sow rows out of doors, it is chiefly low-growing things, as *Saponaria calabrica*, *Venus' Looking-glass*, *Venus' Navelwort*, *Silene pendula*, *Sweet Alyssum*, *Mignonette*, *Virginia Stock*, &c. These will come thick enough, and be kept on with a little pruning; but for all taller things intended for beds or ribbon-lines, such as *Prince's Feather*, *Chrysanthemums*, *Marigolds*, &c., and even beds of such things as *Saponaria*, I prefer sowing in rows under protection, and then lifting and planting in patches. The extra labour is more than repaid by the extra satisfaction of regular lines and even beds. It was partly for this purpose that we moved the old ashes from the earth-pit of Potatoes; but chiefly for planting out *Verbenas* that we wish to forward in strength. A bed is made on the ground with about 9 inches of dung and leaves, about 6 inches of warm leaves go on the top of that, then 3 inches of rotten leaf mould, and then 2 inches or 3 inches of compost of sandy loam and leaf mould. A pole or young tree of spruce or larch, which we keep from year to year for such a purpose is laid on back and front, and on these the ashes are laid, and in a few days the bed below is in fine order for anything, as to pricking out, planting or sowing. We generally use an earth-pit for the purpose, and run a breadth of calico along. Plants lifted from such a bed in patches hardly ever feel the moving, and there they stand until you want them, and go into the ground just when in the best position for them. This and similar earth-beds will be sown or planted next week, and but for such simple contrivances we should never know where to put seedlings. Were it not for the want of heating material, I should apply the same modes to many things besides flowers and the earliest vegetables. It is of little use standing sucking our thumbs in the corners of our mouths like babies, or, sage like, tickling the inquisitive-bump behind the ear with one finger or even with two, if nothing came forth from such operations. Thousands of pots of seedling flowers are lost, because they neither get air enough, nor are watered properly, nor by timely pricking out are prevented "in the struggle for life" killing each other. Thousands of packets of seeds are sown every year in the flower-borders, and only a small per centage rewards the cultivator, and loud and deep are the complaints against the rogues of seedsmen, who sent out the *very best samples*, but could not manage to guarantee against the mismanagement and carelessness of the cultivator in sowing at improper times at unsuitable depths, in cold unaired soil, and who take no pains to prevent slugs, snails, and other vermin clearing off every vestige of seedlings as soon as they reached the surface. Try this month with all small and rather tender seeds, such a bed as I have mentioned, sowing in rows—say 5 inches apart, and tell me at the end of the season if the plan is not worth the cost of this Journal for a twelvemonth.—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

HYACINTHS GROWN IN WATER (F. M.).—No treatment will induce these to bloom again next year. Planted in good rich soil, and protected in winter, they will bloom again, though not strongly, in the spring of 1863.

SUBSTITUTE FOR GLASS (S. W. S.).—Use tiffany, and dress it with the following composition:—Old pale linseed oil, 3 pints; sugar of lead (acetate of lead), 1 oz.; white resin, 4 ozs. Grind the acetate with a little of the oil, then add the rest and the resin. Incorporate thoroughly in a large iron pot over a gentle fire; and, with a large brush, apply hot to a fine tiffany stretched loosely previously, by means of tacks, upon the frame. On the following day it is fit for use, and may be either done over a second time, or tacked on tightly to remain. The quantity made according to this recipe will be sufficient for about 100 square feet of tiffany.

PAXTON'S CHEAP GLASS HOUSE (S., Halifax).—The maker advertises in our columns to-day.

BACK NUMBERS, &c. (A Gardener, Laverstoke).—You can have the Parts and Indices, as well as cheap covers for the volumes. You had better write to our office stating precisely what you require, and giving your full direction.

KIDDEAN SYSTEM OF HEATING (Adele).—Your way of reconciling the conflict between the Kiddean and Polmaise systems, by closing the ventilator over the front of the fireplace, and getting the draught from the ventilators on each side of the fireplace near the bottom, is well worth

knowing. It is too late, now, to attempt what you propose for Mr. Kidd; besides, he is gone to Scotland to arrange and lay out flower gardens for the Marchioness of Breadalbane at Taymouth Castle, and may be absent for some time yet.

MOISTURE IN THE AIR OF A CUCUMBER-HOUSE (An Essex Amateur).—If your four-inch pipes are closed properly at the joints the evaporation that comes from them would not damp a midge's wing. Your reasoning proceeds entirely on wrong data. In its natural habitat, in the hottest weather, the Cucumber grows in an atmosphere abundantly supplied with moisture. You grow the Cucumber in enclosed air, and at a season when our atmosphere is cold and most devoid of moisture. The heat from your pipes increases the evil, as the hottest and moistest air will ever have a tendency to rise and escape, and the cold and dry air to enter to supply its place. We can imagine, and have seen cases, where the leaves of the Cucumbers curled and shrivelled, because the dry air absorbed all moisture out of them. To remedy this, the walls are kept moist, the soil is kept moist—moister than otherwise would be needed—and syringing is resorted to; but the simplest and most effectual means is to place evaporating-pans on the pipes, which will give out moisture in proportion to the heat. There are several papers on this subject in late volumes from Mr. Fish and others.

HOTBED OF SPENT HOPS (R. Tazer).—Throw the Hops into a heap to draw off the extra moisture, and to cause the rank heat to pass away. If the weather be windy, cover the heap with a little straw or a mat. In a week or so, the Hops will be fit for use, and from 15 inches to 18 inches deep will be enough for what you require at this season. Add a few inches more, however, if you have them, because in very cold weather you may need the heat, and in fine weather you can give more air, and if necessary lift the pots, if you sow in pots, and set them almost on the surface instead of plunging them.

CONVERTING A HEN-HOUSE INTO AN ORCHARD-HOUSE (A Subscriber).—We cannot answer you as we would wish without data. We know nothing of the height of your house, the width, or the height of wire you propose having in front. The having a flue takes your house out of orchard-houses, and makes it a hot or forcing-house. With wire sides, the heat from a flue would be like pouring water in at a bung-hole and leaving the tap open. If there were not much of it it might be covered as you suggest, but would not glass be cheapest in a few years? We can judge that the proposal for ventilating will do, though it would be better made of glass in small frames; that the brick floor will do all well enough, and keep your roots from getting down; the earth should not touch the flue if you wish to get all the heat from it, and the trees must stand free of each other whatever the size. You had better have a Peach against the wall instead of a Green Gage; the latter will do better in a pot, so as to be exposed in autumn.

SEED FROM PENANG—DESFONTANESIA SPINOSA (E. X. M.).—We cannot be sure about your seedling, but think it may be a *Menispermum*, the seed of which is a drupe-like berry, rather larger than Indian corn, and the ovule inside is of a horseshoe or moon-like appearance, and hence the name *moon seed*. Most of them are hardy creepers, running over sticks and fences quickly; but as yours came from Penang it may probably be planifolium, and, therefore, will require either a stove or warm greenhouse. It is hardly worth the space it will occupy, but we cannot determine satisfactorily. Let the *Desfontanesia spinosa* grow on in the greenhouse in summer, and give less water and as much sun as possible in autumn, and keep it rather dry in winter. If you send two postage stamps and your direction to our office we may be able to supply the Index.

WARTED VINE LEAVES (Grape Vite).—The warted appearance on the under side of your Vine leaves is produced chiefly by too much moisture in the air of the house, and too much damp and cold at the roots. The remedies are obvious, but the warted appearance will hardly be removed this season by any treatment you may adopt. Increase the warmth of the border at once, but do not reduce the moisture in the air of the house too suddenly. Lessen it gradually.

PICTURES FROM CUTTINGS—STRAWBERRY FORCING (A Cottage).—You can grow your Pictrees from cuttings if you can get healthy cuttings from such plants, and they would bloom next year. We should be disposed to take the plants up and plant them carefully in fresh sandy loam, and see what that would do. If not experienced in striking cuttings, we fear you might lose plants and cuttings too. You will find in recent volumes, and even late Numbers, much on Strawberry forcing by Mr. Fish and others. It would hardly be worth while giving you an outline now, which might have to be repeated in July and August again. Success with early Strawberries in pots depends chiefly on having the pots crammed with roots before placing them in heat. That is not essential now. You can easily now pick out plants that are showing flower-buds. Raise these with balls that you can squeeze into pots, or plant at once in a slight hotbed. If you pot for the vinery, the plants would do better if the pots were plunged in a slight hotbed for a fortnight, with air on—say half an inch back and front. This would encourage the roots to grow, whilst the buds were kept cool, and when placed in the house the flowers would be stronger in consequence. They will do without that trouble, however, now, but better with it.

KEEPING BIRDS FROM CABBAGE SEEDLINGS, &c. (W. N. A.).—The soot and the sawdust, &c., sprinkled over the bed will only palliate the evil. Ruining white worsted strings along the bed, fastened to sticks a foot or more above it, and pieces of tin, glass, bits of looking-glass tied to the string—if the former, two together, so as to ring when moved by the wind—will do as well; but nothing answers so well as a piece of net, fastened at the edges of the bed, and supported on forked sticks in the middle a foot high, to prevent the birds reaching through. They get used to every scaring contrivance in time, and will even get their way below the net if not secured. Old fishing-net is so cheap, that after all, in the long run, it is best as respects simplicity and economy.

CULTURE OF RHODODENDRONS JAVANICUM AND JASMINIFLORUM, AND CYCLAMENS (A New Subscriber).—Keep the Rhododendrons in a cool greenhouse until they have finished making their wood; then place in a nice sunny spot out of doors, and give plenty of water during the summer and autumn, but not so much as to excite the flower-bud to grow prematurely. When the Cyclamens have done flowering, lessen water until the leaves decay, and then if the pots are set in a moist, shady place, they will need no watering until growth commences again.

DESTROYING WOODLICE (H. Lewis).—Lay a little dry hay down in their haunts. Provide yourself with a small fine-rosed watering-pot, filled with

water nearly boiling. Move the bay quickly with one hand, and scald the gentlemen with the other. Take some small pots, put a bit of boiled potato or raw carrot in the bottom, and place some dry hay or moss over it, half filling the pot. Go over all these the first thing in the morning, and tumble the myriads most likely inside into boiling water. Persevere and you will conquer. Let alone and they will conquer you.

FLOWER-GARDEN PLAN (A Young Gardener).—You have done your part to the very letter; showed the position of the dwelling-house, the greenhouse, the leading walk, the Americans and evergreens, with the independent beds on one side of it, and the principal flower garden on the other, the beds all numbered, and a list of plants showing what you intend for each bed. If you had put an arrow to show the south and north you would be entitled to a first-class certificate. Bed 6 is not planted, but you intend it, of course, to be the same as 2. No 1, the centre bed, is on a wrong principle, that was common in the last generation, when it was not uncommon to see a flower garden with the centre bed in scarlet or yellow. Put the plants intended for 1 into 8 and 4, then, with Commander-in-Chief in 11 and 14, your forces will be in position. Four or five plants of *Perilla* in the centre of 1, with three rows of *Flower of the Day*, or the like of it, round *Perilla*, and a row all round of *Lobelia speciosa*, would make the best centred bed in England for such a flower garden as yours. 9 and 3 should be exactly alike—say *Calceolaria*; and 5, 5 the opposite pair the same—say *Tropaeolum elegans*; or else cross-cornerways, 9 and 3 to match, and 3 and 5 the match pair. Either way will release the African Marigold for you. The way to do the African Marigold is to sow it on the 1st of May, to keep it out of sight, and transplant it twice—at the end of May, and again towards the end of June. When 18, the *Delphinium formosum* bed is over, early in August cut it down, and plant the African Marigold there, and some China Asters round it at the same time. You should have some hardy variegated low plant all round the big circle of *Roses*. Every large Rose-bed on grass, and away from other beds, should have a cheerful edging plant to it. If it is very large, a band of Variegated Mint would suit best. If it is 8 feet or 10 feet across, *Stachys lanata* is the best; and if only 6 feet across, *Cerastium* would suit better; but an edging there should be.

VARIOUS (A New Subscriber).—The *Dielytra* will do best planted out in summer, raised and potted in autumn, and kept in a cold pit in winter, when it will force into a flower whenever you give it a heat above 50°. The *Deutzia*, as soon as it has done flowering, should be well pruned to encourage making young wood; and if that is well ripened it will bloom all the length when subjected to a mild heat. It matters not whether you plant out and report, or report. We prefer the latter, and not having the pot too large for the plant. The *Hydrangea* treat in the same way; planted out, or in a pot, every well-ripened bud made on the shoots this season will produce a flower-head next year.

VARIOUS Inquirer.—Purple Orach is the same as the red. We will inquire about the nurseryman's address which you inquire for, perhaps he will advertise it next week. You have kept your Ten-week Stocks either too much in the dark, with too little air, or with too much heat; or you have ill-treated them in all these particulars. Sow the Asters in pans and avoid all the errors we have specified. You may sow Asters and *Phlox Drummondii* at once in beds under hand-lights; but the latter would be better in gentle heat. The names in parentheses after those of the Carnations, are the names of the florists who raised them. The plants can be obtained of any respectable florist. It is too late for planting the tubers of *Anemone* and *Ranunculus* to bloom at the usual time.

GOLD AND SILVER FISH.—"J. B." writes as follows:—"I have a tank brick and cement, in my garden holding upwards of one thousand gallons of water. There are very many gold and silver fish. Water from the Thames is supplied them almost daily. Within the last six weeks I have discovered many of them with a whitish slimy substance adhering to them, even covering the eyes. Most of such fish so affected, excepting the largest, died. Can you inform me of the cause and a remedy? There is gravel at the bottom, and Water Lilies growing." We shall be obliged by any of our readers sending us how to cure and prevent this parasitical affection.

PEAT CHARCOAL (R. B.).—There is a manufactory of it somewhere near London. Inquire of the London Manure Company. The Pomological Society is defunct.

LAURUSTINES KILLED BY THE WINTER (A. M. I.).—Leave them uncult down, as you say that there are some green shoots. If any vegetate this spring, then cut away all the dead portions. A curious exemplification of the Laurel being harder than the *Laurustinus* is now to be seen in the Westbourne Road, Bay-water. They were there planted alternately, and every one of the *Laurustinus* is killed, whilst every one of the Laurels is green and shooting vigorously. Your other question is answered in "Our Letter Box."

CINERARIA SEEDLINGS (—).—No. 2 may be a showy border flower, but we cannot be sure of that unless we knew the form and habit of the plant. The others are ordinary pips of no superiority.

INSECTS (A Subscriber).—The larva is that of the common Dragon Fly (*Libellula depressa*). The shells are *Philina aperta*, and the small white object is the very young state of an *Echinus*, probably of the genus *Fibularia*.—W.

NAMES OF PLANTS (F. Whittington).—*Fritillaria meleagris*, common or chequered Fritillary. (*S. Decon*).—No. 1, *Luciola sylvatica*; No. 2, *Cardamine pratensis*. (*A. F. H.*).—It is *Franciscea hydrangeaeformis*.

FLOWER SHOWS FOR 1861.

MAY 15th. CRYSTAL PALACE. (Plants, Cut Flowers, and Fruit). Sec., W. Houghton.

JUNE 5th and 6th. ROYAL HORTICULTURAL SOCIETY. (Plants and Fruit). *Garden Superintendent*, G. Eyles.

JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. Sec., E. Carpenter.

JULY 6th. CRYSTAL PALACE. (Rose Show). Sec., W. Houghton.

JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show). *Garden Superintendent*, G. Eyles.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit). Sec., W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers). *Garden Superintendent*, G. Eyles.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums). *Garden Superintendent*, G. Eyles.
NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.
NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show). Sec., W. Houghton.
N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

MAY 21st, 22nd, and 23rd. CHESTERFIELD AND SCARSDALE. Hon. Sec., Mr. Thos. P. Wood, jun., Doythorpe House, near Chesterfield. Entries close May 1st.

MAY 22nd and 23rd. BEVERLEY. Hon. Sec., H. Adams. Entries close May 4th.

JUNE 4th, 5th, and 6th. BATH AND WEST OF ENGLAND. Sec., S. Pitman, Esq. Entries close May 4th.

JUNE 19th, 20th, and 21st. COALBROOKDALE. Secs., J. B. Chune, and Henry Boycroft, Coalbrookdale.

JUNE 25th. DREIFIELD. Sec., Mr. R. Davison. Entries close June 22nd.

JUNE 28th and 29th. TAUNTON. Sec., Mr. Charles Ballance. Entries close June 14th.

JULY 2nd and 3rd. BLACKPOOL. Sec., Mr. E. Fowler, jun.

AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. Sec., W. Houghton.

SEPTEMBER 3rd. POCKLINGTON (Yorkshire). Sec., Mr. Thomas Grant. Entries close August 26th.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., M. J. B. Lythall, 14, Temple Street. Entries close November 1st.

DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., W. Houghton.

N.B.—Secretaries will oblige us by sending early copies of their lists.

"FOR OUR KITCHENS WE KILL THE FOWL OF SEASON."

SHAKESPEARE.

WE have seldom had any communication that has given us more pleasure than that received from *One who has not lost sight of a Dorking fowl*. It is written by one who thoroughly understands the subject, and in that proper spirit of kindness which provokes the interchange of knowledge, and contributes to that sort of brotherhood in the pursuit, which has made many say they have formed valuable friendships while following their hobby.

Fowls are like human beings, and those that will attain to the largest size will be loose and long-membered. If all the food is expended in length, there will be nothing left for breadth; and though in a man there may be such growth of muscle as will prove that he is not outgrowing his strength, still there will be no deposit of fat. This is equally true of fowls, they will not put on fat till they have done growing. The birds known in England as "spring chickens" and in France as "*poulets à la reine*" are a peculiar breed, familiar only to those who have to do with them in the way of trade. It is next to impossible to describe them, as they have no marked characteristics. Some have four claws, some have five. They have no fixed colour; no peculiar comb. There is nothing to make them fancy birds; nothing to distinguish them from what would be indeed, named after appearances, Dunghills, or shabby little fowls. But if early maturity is to be taken into account, and if those that make food in the shortest time are to be the peers, we are not sure that these little Dunghills would not be premier fowls. These are the small breed; they begin to fatten six or seven weeks after they are hatched, and at twelve weeks they are complete in shape and form, and thoroughly fattened. At the time we now write such are making from 8s. to 10s. the couple. The stock birds are squat, square, and small. Age hardens them, but does not make them larger; and if, as it often happens, it is necessary to kill two or three of the old hens, and they are sent with young chickens—probably their own progeny—it is ridiculous to see the strong family likeness, and the small increase in size consequent on old age. It is valuable as affording proof of their purity as a breed.

People do not usually know, and they will hardly believe, the many thousands of pounds annually sent from London for this breed only. They are, however, only fit for those who look for flavour and quality, and with whom poultry is an adjunct to, but does not form, a dinner. For this cause they would not be saleable in any other market than London. In the country and in ordinary houses where "a couple of fowls" either form the dinner, or at any rate contribute the most important part of the first course, these chickens would be viewed with contempt, and then recourse must be had to the Dorking.

Dorkings are the birds that will sell in a country town on

account of their size, but they may be too fat; and then, like prize beef at Christmas, while they are admired as showing their capabilities in that way, and while wonder is expressed at the veins of fat intersecting the scanty lean, the fact rather renders them unsaleable than otherwise. It is impossible to fatten a Dorking chicken, if by that term we mean such a one as we have described at the beginning; but a good, large, fleshy, and moderately-fat bird, such as will sell in any market, must come from the Dorking.

It is easy after "Potage à la reine," "Saumon saucé Hollandaise," and so on, to look with loathing on a good, large wing; but if you have been throwing a fly over the Winchester or Andover white water all the day, and sharing the usual fate of the gentleman at table—have the leg at dinner—you will say the Dorking cannot be too large, and you will rejoice you are not in Sussex where the small and delicate chickens prevail.

A friend of ours says the Dorking is a curate's fowl, while the chicken should frequent fat rectories. If a referee be wanted to decide, we recommend the author of "Barchester Towers" to officiate.

The late Sidney Smith said "Barndoor fowls for Dissenters, but for the Thirty-nine-times-articled clerk of the Church of England the Pheasant, the Pheasant, and nothing but the Pheasant." We paraphrase the sentence, and we say, for the man who has an "embarras de plats," the chicken; but for the man who has been with the Cheshire, the Quorn, or Mr. Garth's, or who has flogged the river all day, we say the Dorking, and, in familiar parlance, we say, "The bigger the better."

We will return to this subject.

DORKING CHICKENS AT EXHIBITIONS.

THE opinions given by your correspondent, *One who has not lost sight of a Dorking fowl*, are quite at variance with practice. His words are—"It is very rare you see now-a-days a pen of prize Dorking chickens purchased at large Shows—viz., at Birmingham and the Crystal Palace, where there are great contests for the championship, which, when they arrive at adult age turn out anything like what the purchaser anticipated at the time of purchase."

It must be from a want of knowledge in the management, if you do not see the first-prize pen from either of the above Shows in the prize list wherever exhibited, if in health and not too fat.

Can your correspondent produce any one who has bought a first-prize pen of young Dorkings at either of the above Shows during these last five years, that has been so unfortunate as he would lead purchasers to believe?

I, for one, have at present three first-prize pens of chickens from the Palace, and very seldom show without gaining a prize.

Again, your correspondent says, "I can speak from my own experience. No Dorkings, I am sure, will ever get too fat by running in a farmyard and moderately fed." Now, on the contrary, I have had them get too fat running in the farmyard and not fed at all.

How different our experience! I have also had them become too fat for the judges when running in the centre of a very extensive park, by feeding night and morning only.

My Dorkings are all running in farmyards or woods, and are fed twice a-day, and are in good laying condition, and not put up to fat, yet they weigh from 9 lbs. to 13 lbs. and most of them have taken first or second prizes, either at the Crystal Palace or at the Birmingham Shows.

I should by all means advise intending exhibitors to purchase prize fowls at either of those Shows. If they can show them in good condition they will soon repay themselves. The Dorking is a fowl you can improve until three years old: therefore, if you see a pen of young Dorkings to please you, buy.—JOHN DOUGLAS.

PROFITABLE POULTRY KEEPING.

In your Number for April 2nd, at page 16, you favoured your readers with some interesting extracts from, and some just but friendly criticisms on, Mrs. Fergusson Blair's work, "The Henwife."

I have long kept hens for the purposes of profit only; and the point to which I would call the attention of your numerous readers is, the very small profit balance for the large number of "more than one thousand chickens annually hatched;" which

profit would be reduced to a certain loss, had the expenses of exhibiting, as you suggest, been placed on the debit side.

The county in which I resided (Shropshire), on my first essay in poultry-keeping, eggs were worth 1s. only per score in the laying season; and fat fowls were considered dear at 4s. the couple, the more usual prices being from 2s. 6d. to 3s. I have purchased fat young Ducks at 2s. 6d. the couple, when, as the local phrase hath it, the vendor had "overstood the market."

But to return to the more immediate subject. As before observed, I had kept hens with profit, even at the prices given above, when I removed into Hertfordshire, and there became acquainted with the system of poultry-keeping on a large scale; and in which the balance is on the right side of the account, to the tune of some—not tens, nor even hundreds, but—thousands of pounds in the aggregate.

This insight decided my course. I commenced at once, though on a very moderate scale; and I will give, with your permission, the results I attained.

My accounts begin but imperfectly; but when fairly at work, a daily journal was kept—not a chicken nor an egg being disposed of without an entry of the price obtained; and when for home consumption, entered at cost price. On the other hand, all grain, meal, bran, and the several et ceteras for poultry feeding, were duly placed on the debit side; and at the year's end, a moderate charge was made for management, rent, and interest, thus putting to the proof whether or not poultry-keeping is profitable.

And I can safely aver it is, and that to a great extent; the fact being established, profit is only a matter of degree. The want of capital alone prevents me turning my knowledge and practice to good account.

I well remember a writer, in one of the early volumes of THE COTTAGE GARDENER, stating that "a hen was as profitable as a sheep." I agree with this assertion. I can give data proving that the nett profit of poultry keeping is ——. Well, wait until the next Number, good reader; and then, with the permission of the worthy Editors, you shall know all.—LEIGHTON.

(To be continued.)

APPROACHING POULTRY SHOWS.

TATTON AND SOMERSET POULTRY SHOW.—This Society at their next show, offer thirteen pieces of plate and three silver medals, the former value £2 2s. each; and also money prizes between £50 and £60. The highest entry-fee is 1s. The Committee have a good subscription list, and everything promises well for a most successful exhibition. There are Sweepstakes (entries 7s. each) for Single Cocks of Spanish, Dorking, Cochins, China, Malay, Game, Hamburgs, Poland, and Game Bantam. Charles Ballance, Esq., is the Secretary; and we take this opportunity of saying that such secretaryship is always "honorary," except in the case of such extensive Exhibitions as Birmingham and the Crystal Palace.

DRIFIELD.—This is held in combination with a floral and horticultural exhibition; the prizes vary from 20s. to 5s., and the entry is only 1s. per pen. "Pigeons and Rabbits must be shown in the exhibitor's own cages or boxes."

HEN WITH STRADDLING GAIT.

THANKS for your advice upon the hen with straddling gait, but it came too late. She died yesterday. We saw she was worse, but did not expect her to die, as she pecked about as usual; but she had during the week made a noise like coughing, and the last day lost her voice entirely; she tried to cackle, but there was hardly the least sound: she breathed heavily, and seemed to be more stupid and giddy, if going backwards with head to the ground as if to avoid something before her eyes is a symptom of giddiness. Upon opening her there was fat similar to that of a Goose, and a little on the gizzard, but on every other part she was thin, the breastbone piercing through the skin. There was a number of yolks, and one in the egg-bag which she would have laid the next day; but the heart and lungs were not larger than a Bantam's, and the liver seemed large and dark; a great deal of inflammation was all round the covering of the bowels.

She never seemed to have any difficulty in laying, never remaining very long on the nest. She commenced her ailments two months back, with loss of power in the legs and great

nervous or convulsive action. She has had repeated doses of oil; but she never seemed right, and always had that straddling gait after she regained the power of her legs. With regard to feeding, I have followed closely the rules given in your valuable paper—feeding with ground oats, mid-day meals; barley and scraps for third meal. As to quantity, I must plead ignorance as to whether I over-do it. Will you say if it is over-feeding, as I have the sister Cochin, both being great pets? I should so regret losing the other, although she is nine months old and never yet laid an egg.

[We should say from the symptoms you have described, the hen died from over-feeding, but it, probably, took place long since. When there is as much fat as you describe, laying is always a matter of difficulty, and that would cause the awkward gait. We advise you to give the other three doses of a tablespoonful of castor oil at one day's interval, and to feed sparingly. The proper quantity may be easily known, if you feed only so long as the birds will run after a small piece of food. If it is given so long as they will pick, or if they have food by them, they are over-fed. *Feed less*, your fowls will be better, and will lay better.]

PIGEON JUDGING.

SOME time ago a suggestion appeared in *THE COTTAGE GARDENER*, relative to the points to form a basis for the judgment of Pigeons at the various exhibitions, and you were good enough to offer to place a space in your columns at the disposal of fanciers, for "comparing notes" on the subject. Encouraged and patronised as the Pigeon fancy has now become, the importance of some standard by which the value of the different varieties should be ascertained, and by which amateurs should be guided, is self-evident; for even at some of our largest exhibitions—such as Halifax, Birmingham, Crystal Palace, Preston, &c., it is not unfrequent to find it stated that in some classes the decisions at previous exhibitions were reversed. Certainly a margin must be left for individual fancy; and doubtless beyond some small peculiarity the awards are generally correct and impartial. Such is not the case, however, at some of our minor shows, and birds which have "figured conspicuously" at the largest exhibitions, are often unnoticed at the smaller shows.

The outlay incurred in obtaining the services of an able judge is seldom great, and in many cases merely travelling expenses are charged. But that such a person should be chosen from a distance, and unacquainted with the neighbourhood, is too apparent to require comment.

As it too frequently happens in notices of poultry and Pigeon exhibitions, the latter are merely referred to as "forming an interesting collection," with your permission, therefore, I will make a few remarks on the Sunderland Poultry and Pigeon Show, premising that my name did not appear in the catalogue. Chancing, however, to be in the neighbourhood, I looked in at the Exhibition, and made a few notes on the various classes, which may possibly be useful in future to exhibitors at a distance.

The entries for "Almond Tumblers," and "Tumblers, any other variety," were not large: the first prize in each being given to good birds; the second in the latter falling to a pair of "Long-faced" common Yellows, valued by the owner, and unclaimed, at 15s., the class containing two respective pens of Short-faced Mottles, Black and Yellow.

Carriers numbered seven entries, the first prize being awarded to a pair of fair Duns; a pen of Blacks, not on very good terms with each other, taking second; two pens being commended, one of which contained the best hen in the whole class, but associated with a slightly inferior cock.

Barbs had also seven entries, the first and second prizes being given to very inferior-crested Blacks. Two pairs of plain-headed birds, short in beak, and broad in head, with much superior eye, were passed over, one pen only being commended.

Powters only had four pens, and were not of especial merit; Blues taking the first honours, and Blacks second.

Trumpeters had four entries, the first prize being allotted to a pen of light Mottles, not much accustomed to each other's society, and anything but loveable; Whites, out of condition, gaining second.

The Fantail class was a good one, but the birds showed indifferently.

Jacobins mustered in great force, there being ten pens. The prizes were awarded to large coarse birds (Yellows), particularly

the second-prize pen. The former were, however, in good feather. A pen of small and fine Reds were commended.

In Nuns, both prizes were given to black-headed, good birds. The first prize in Turbита was gained by a pair of average Blues, a pair of Black-dappled being second.

Owls were an inferior class. A pen of crested Blues, without the slightest pretensions to points of head, beak, or eye, taking first; the second being awarded to a much better pen of Silvers. Two pens, White and Silver, respectively should have changed places with the successful birds, the first prize pair being unquestionably the worst in the class—in fact, not Owls at all. The remaining class, "Any other distinct breed," contained eleven entries; a pair of inferior White Barbs (crested), obtaining first, notwithstanding the Barb class, and Blue Magpies second; a pen of handsome Swallows, and a pen of fair Silver Runts, not being considered worthy of a commendation.—A FANCIER.

[We depart from our rule of refraining from criticising the decisions at shows, because the preceding emanates from a good authority, is written in good spirit, and because the committees of poultry shows are not so careful in selecting the judge of Pigeons as they are the judge of poultry. This is a great mistake, and unless a different course is adopted Pigeons had better be omitted from the competing classes.—EDS. J. H.]

BEE-HIVES AND THEIR APPURTENANCES.

(Continued from page 34.)

SWARMING-HIVES.—Being of opinion that, both as regards shape and material, there is no receptacle into which bees can be introduced, and more healthfully preserved with less care than

DOME-SHAPED STRAW HIVES, therefore these still retain a place in my apiary, with the undermentioned improvements, as *stocks to swarm*. At the same time it is well that every hive, before being used, should be so fitted as to act in emergency the part of a depriving-hive; as it sometimes happens that the hive so destined will fairly exhaust one's patience, although blocked out at the entrance, determinedly clinging to the old abode; while it may chance at the very time, another we had hoped great things from as a depriver will show, despite every effort to prevent, as strong a predilection to be off. To save time, it therefore becomes good policy to let each follow the bent of its inclination.

Success in bee-keeping depends, in a measure, upon being guided somewhat by the habits and instincts of the insects. I never, therefore, liked the principle of returning swarms, particularly seconds; far better to hive them at once as they come off, strengthening the parent hives at the end of the season with the inmates of the condemned stocks, right and left, as recommended by Gelieu. The returning but leads to a fresh exodus on the first opportunity, causing endless trouble to the apiarian, and keeps the stock in a continual hubbub.

I place my seconds, one in an under-sized straw hive, if early and strong—if later, two or three or even more together in a larger hive; these, stimulated with a little spring feeding, and possessing a young queen, make capital swarmers.

The district and bulk of swarms must somewhat regulate the size of hive. 14 inches inside are the width of mine—a dome-shaped, about 9 inches in depth to the eaves. The standard I have adopted is about 1300 cubic inches, or say, in other words, such a size as a box 12 inches square by 9 inches deep. I have wrought successfully this size with end openings, and have never yet found brood in a super—of course I mean single prime swarms of the season, destined to swarm the succeeding year.

It is a poor season indeed that a fair swarm does not yield something, and generally keep itself through till the next. Should need be, however, a little feeding is supplied in the beginning of March.

A simple mode by which the size of round-topped and other odd-shaped hives may at once be contrasted with the standard, is to fill a box of the desired dimensions with clean grain, and empty it into the other.

The bands of common straw hives are generally about three-quarters of an inch wide; they can be very beneficially increased to 1 inch or 1½ inch. I have often heard cottagers remark, that somehow their thick skeps were always lucky. They should all be wrought with cane, and attached at bottom with the same material to a good hard wood hoop, through holes bored with a hot iron to prevent splitting: this adds greatly to their durability.

Boys' playing-hoops answer the purpose very well—those of ash—cost a copper or two, at any toy-warehouse, are to be had of all sizes, and ready for use. A nicer mode, although more expensive, is to cut, with a saw out of three-eighth-inch dressed board, two flat circular rings of a breadth corresponding with the thickness of the straw, lay one above the other with the grain of the wood reversed, carefully glue and sprig together, and attach to the under band of hive with screws; as much of the lower ring to be cut out in front as is required for an entrance, the upper with the straw affording shelter to the bees about it. My straw hives have a small window behind placed in an aperture cut $4\frac{1}{2}$ inches by $3\frac{1}{2}$ inches—of course, the bands taken out must be of the full thickness; a bit of dressed board of similar thickness as the straw is made to fit tightly into the space; a piece $3\frac{1}{2}$ inches by $2\frac{1}{2}$ inches cut out, leaving a frame of half an inch all round; a rabbit of a quarter of an inch is sunk to receive the pane, which can be retained in its place with putty or four little quarter-inch slips of wood sprigged. An odd end of a slide (bar-and-slide hive-tops), one edge run off and sprigged on with the rabbit side inwards, is available to work a small shutter of quarter-inch wood, $4\frac{1}{2}$ inches by $3\frac{1}{2}$ inches, with a fine rabbit cut in it to match the other. The entrance is 5 inches by three-eighths of an inch cut through the hoop, contractable at pleasure, as will be afterwards explained under "entrances."

FLAT-TOPPED STRAW HIVES are 14 inches wide by 9 inches deep, wrought on hoop-window and entrance as above, are fitted as deprivers by cutting out each top-end band of straw, the space filled up by dividing a bar (bar-and-slide hive) into two, and securing it to the straw back and front; into the grooves in the bar, a half-inch or five-eighth-inch slide is wrought. The bees by this means are admitted by both ends into the octagon super, if such be used; if bell-glasses, one can be placed over each opening. Any inequality in the straw of the top of the hive where the super rests can be made up by tacking a little slip of wood round the box. I omitted to state above that a similar mode for an entrance to the super can be resorted to in dome-shaped hives, with this difference—that the super rests on a board screwed on the top of the hive, the bees being admitted into it by the ends as before; the communication between the ends of the hive and the top-board effected by two thin pieces of wood secured, half-an-inch apart, with end pieces, and passing through slots cut to receive them in the top-board. These uprights are kept from slipping into the hive, or too far through the board, by little pieces nailed round acting as flanges; the top-board and these end pieces only remain on the hive when required for supering.—**A RENFREWSHIRE BEE-KEEPER.**

(To be continued.)

EARLY HARVESTING OF POLLEN.

I HAVE observed that in some of the communications lately inserted that your apianian correspondents in England appear surprised at the statements made by your Renfrewshire correspondent, of his bees having been seen carrying pollen on the 27th of January last.

As I feel a great interest in all the movements of these industrious insects, I have frequently noted down in my pocket-book remarkable observations of their swarming, and early or late industry, &c.; and upon reading those articles upon the apiary above referred to, I was induced to look over my pocket-book, where I find it noted, January 28th, 1861, "Bees seen working upon snowdrops in the open air; and again February 1st, working and carrying pollen upon crocuses, snowdrops, and *Jasminum nudiflorum* in front of my house, which is brick, and facing the south." On looking back at former dates I see they were first seen on flowers on February 10th, 1856; and on the previous year (1855), which had a severe winter and very late spring, they were first seen on flowers April 17th—an amazing contrast, certainly to the present season. I see I have it also inserted as being unusually late. Bees working and carrying pollen "freely" on November 14th, 1859.

These extracts may prove interesting to some of the bee-keepers in the south "if you consider them worthy of insertion." I may also remark that this place is in the east corner of Morayshire, and is upwards of 200 miles north of Renfrew. The remarkably warm and soft south-west wind, which we had here of above a fortnight's duration towards the latter end of last January, and beginning of February, gave a stimulus to vegetation, which a week's frost in February failed to check; and

everything was nearly as forward on the first week in March as it was in 1859, when everything was so early, and which was preceded by so mild a winter. The lowest night temperature on the 27th and 28th of January last was 47° and 48° respectively.—**JOHN WEBSTER, Gordon Castle.**

P.S.—I had almost omitted to remark that there are but few deaths in our apiaries in this quarter, and although weak, the bees are carrying pollen freely at this date (April 5th).

DURATION OF QUEEN BEE'S LIFE.

INTRODUCING A LIGURIAN QUEEN INTO A HIVE OF COMMON BEES.

ON looking over what I am quoted as having written in reply to your correspondent "H." at page 375 of your last volume, I find an error, whether of my own or your compositor I cannot say; but if mine I must apologise to "H." for having written so carelessly. The error (obvious enough to every bee-master), is contained in the following words:—"The queen in our correspondent's hive (which hive is a swarm of 1859), will last two years longer in a vigorous condition." If, instead of "will," "H." will read "may," the error will be corrected; but it must be added that if "H." does not know the age of the queen, she may also be drawing very near the close of her natural life. I certainly understood that your correspondent's hive was not itself a swarm of 1859, but that it had given out a swarm in that year, in which case the full term of the queen's life would not expire till 1863—i. e., assuming that queens live four years.

Permit me to suggest a method of introducing Ligurian queens into established stocks, which I intend to adopt myself this season. I have three queens, known to be old, at the head of very rapidly increasing stocks; these I intend to compel to swarm artificially as early as possible, if I can procure the Ligurians to take their place. Each artificial swarm will be made to take the place of the old hive, which will thus be denuded of all its full-grown bees. The next day, or, better still, in the quiet of the same evening, I shall introduce the Ligurians. The young bees, I take it, will offer little or no opposition. To succeed the Ligurians must, of course, be in full laying trim, and impregnated by the males of their own species beforehand. In this case they would very likely swarm themselves in June; but their offspring (queens), would very likely be hybrids, as there would be, most probably, a good deal of drone-brood in their usurped dominions. This, however, might be carefully cut away at the time the swarm was artificially made.—**B. & W.**

WHAT ARE THE TRUE DIMENSIONS FOR COMB-BAR HIVES AND BOXES?

SINCE replying to the inquiry of a "NORTH-LANCASHIRE BEE-KEEPER" on this subject, I have been indebted to the kindness of a friend for the possession of a copy of the Rev. L. L. Langstroth's work on "The Hive and Honey-Bee." As it is to this gentleman that American bee-keepers owe the introduction of bar-and-frame hives, in the use of which he has had great practical experience, due weight should certainly be given to his opinion. On examination I find that he names $11\frac{1}{2}$ inches as the proper width to accommodate ten bars. Although this is much closer than I should have ventured upon without such high authority, I have given the subject my most earnest attention; and having for various reasons arrived at the conclusion that Mr. Langstroth is correct, I am now altering all my stock-boxes of 13 inches square from eight to nine bars, increasing at the same time their depth from 7 inches to 8 inches and allowing sufficient space above the bars to give free passage to the bees.

I do not urge a "NORTH-LANCASHIRE BEE-KEEPER" to follow my example, because it is as yet quite an experiment, and may turn out an unsuccessful one, although I cannot confess to any misgivings on the subject. In due time I shall have pleasure in communicating the result to the readers of *THE JOURNAL OF HORTICULTURE*.—**A DEVONSHIRE BEE-KEEPER.**

BEE ROBBERS—TREATMENT.—When robbing bees attack a weak colony having a fertile queen, it is advisable to remove it from its stand to a dark chamber or cellar. Set an empty hive in its place, strew therein a handful or two of the stems and leaves of wormwood, and rub the front of the hive and the bottom

board therewith. The assailants will soon forsake the spot, and the colony may be replaced on its stand on the evening of the following day.—(*American Bee Journal*.)

CANARIES' FEET DISEASED.

In answer to "R. S. V.," I beg to say that one of my best birds was afflicted very much in the same way. The leg from the toes to the first joint up began to swell on one foot. I took the bird out and carefully examined the foot, but could find no trace of hair or anything round it, although I used a powerful magnifying glass. I bathed it in warm water, and likewise gave it a drop or two of sweet spirits of nitre in its water, and plenty of groats to eat. In two days after the upper part turned black and all the scales fell off. I again took the magnifying glass, but could find nothing to indicate the cause. With frequent bathing in warm water the disease went off in about a fortnight.

I think if more frequent communications on these subjects could be obtained, a vast amount of useful information would be brought forth in your paper, both interesting and useful to bird breeders.—WM. YOUNG.

[Our columns are open to all correspondence upon such subjects.—EDS. J. H.]

CATCHING TOMTITS.

A "RENFREWSHIRE BEE-KEEPER" writes that his bees were annoyed by the large black-headed Tomtit (*Parns magnus*), during the late winter. I have always found these birds more destructive in November, December, January, and February only, in seasons moderately cold; as, during extremely severe weather, the bird cannot entice bees to the entrance, which ought, in fact, always to be stopped with wood or tin in such weather.

The Tomtit prefers the straw hive much more than the wooden box for his predatory habits; but I have recorded in Vol. VII. or VIII. of THE COTTAGE GARDENER my mode of destroying what they call in Hampshire the great "bee killer." Take one of the inexpensive common mouse-traps, price 4d., and bait it with suet or a bit of bacon fat, and place it on the top of a hive or box. My straw hives are covered with earthen pans, and these coverings do to place the trap on. In the course of a month sixteen of these impudent birds were caught in this spring-trap, and not one Robin. I quite agree with your correspondent that the placing of poison is a cruel plan, as the innocent too often suffer for the guilty. The great Tomtit is as fond of suet as many aldermen are said to be of turtle; and the bird is fond of looking into little holes and corners, pulling out straws, &c., for the insects concealed there.

During the summer when grubs and caterpillars are plentiful, I have never found these birds at all troublesome except in attacking my green peas.—H. W. NEWMAN, *Cheltenham*.

SCARCITY OF STARLINGS.—I should be glad to know from your correspondents in various parts of the country whether they have noticed this spring an extraordinary scarcity of Starlings. In this neighbourhood I have not seen one, although the church and rectory for many years have been the favourite resort of hundreds of these birds. Are we to conclude that they were all killed by the severity of the winter, or that from lack of food, they migrated to less inclement latitudes? If we take the former alternative, they must be a more tender bird than is generally supposed; if the latter, how is it that not a single pair should have returned to their old haunts?—E. M., *Gaithersburg, Cheshire*.

VARIETIES.

TO CLEAN TAINTED BARRELS.—The best method for cleaning tainted barrels is to put one peck of charcoal and one teacup of potash into each barrel, fill them up with boiling water, cover tight, and let them stand until cold.

HOW TO TRANSFER PATTERNS.—Transfer paper is certainly the most easy and convenient method; if it cannot be purchased, it can always be made in a few minutes in the following manner:—Take a sheet of thin writing paper, and with a piece of wadding or flannel rub it all over with a little sweet oil, carefully removing any superfluity on the surface of the paper; then rub on to this oiled paper a little colour, either light or dark, according to the

colour of the material on which the work is to be executed—if a dark cloth, for instance, a little chrome yellow is the best; if a light drab or any pale colour, a little common blue makes the lines perfectly visible. This colour must also be well rubbed into the paper, so that none shall be left on the surface. When the paper is thus prepared, place it on the material and lay over it the pattern to be transferred, and with an ivory knitting-needle or a stiletto, trace the outline of the pattern, which will be found to be transferred to the material with perfect distinctness, if properly managed.—(*Peterson's Magazine*.)

SALLY LUNN.—I am tempted to send my recipe for this most delicious tea bread, which, once eaten at your table, will cause your friends to rejoice when asked to come again. Take a stone pot, pour in one pint bowl of sweet milk, half a teacup of bakers' or other yeast, one-quarter of a pound of melted butter, a little salt, and three beaten eggs. Mix in about three pint howls of flour; let it stand several hours, or until quite light; then put it into Turk-heads or other tin pans, in which Sally should again rise up before being shoved into the oven, to be "brought out" and presented to your friends as the beauty and belle of the evening.—(*American Country Gentleman*.)

HOW THE JAPANESE REVIVE FLOWERS.—Another little practice I would mention here for the benefit of those who love to decorate their rooms with flowers. After a bouquet is drooping beyond all remedies of fresh water, the Japanese can bring it back to all its first glory by a very simple and seemingly most destructive operation. I had received some days ago, a delightful bunch of flowers from a Japanese acquaintance; they continued to live in all their beauty for nearly two weeks when at last they faded. Just as I was about to have them thrown away, the same gentleman (Japanese gentleman) came to see me. I showed him the faded flowers, and told him that, though lasting a long time, they had now become useless. "Oh, no," said he, "only put the stem ends into the fire, and they will be as good as before." I was incredulous. So he took them himself and held the ends of the stems into the fire until they were completely charred. This was in the morning; at evening they were again looking fresh and vigorous, and have continued so for another week. What may be the true agent in this reviving process I am unable to determine fully: whether it be the heat driving once more through every leaflet and vein, or whether it be the bountiful supply of carbon furnished by the charring. I am inclined, however, to the latter cause, as the full effect was not produced until some eight hours afterwards; and as it seems that, if the heat was the principal agent, it must have been sooner followed by visible changes.—(*New York Herald*.)

OUR LETTER BOX.

HENS DYING WHILE LAYING (*K. M. L.*).—The cause is told in one of your own sentences—"when pended they are very fat." This and their appearing "dull and heavy," demonstrates that they are fed too well. Give them each a table-spoonful of castor oil, no barley, and no "bits from the kitchen." Give them a little soft food at night, and nothing more all the summer, as they have "a good run, and access to water and grass."

DORKING WITH FESTERED FOOT (*A Constant Subscriber*).—The festered foot is probably the remains of the frostbites. Very many birds lost part of their toes down to the first joint. Remove the cockerel from the yard if it has a hard surface, and place him on grass. After your feeding, barley is never good food if fowls are confined to it. It is worse than usual this year, owing to the bad quality. Get some oats, and have them ground very fine without taking away any part. Let this be slaked with water, and feed with it. Your fowl's will then get well. You need not be uneasy about the diarrhoea.

LOP-EARED RABBITS (*L. E. R.*).—Refer to the lists of prizetakers, and write to them or what you need. You will see a drawing of a first-class Lop, and all the points desired, detailed in our No. 648. First series.

MANAGEMENT OF GOATS (*M. Fitzgerald*).—If written by the party you mention, the information is not the result of his own experience. We shall be very much obliged by any one who has successfully kept Goats for the sake of their milk, favouring us with particulars of their management the kind of Goat they kept, food, &c.

LONDON MARKETS.—APRIL 15.

POULTRY.

There is still a real dearth of poultry. It is likely to continue for some time, as the high prices will cause senders to prefer a present large price to a larger in perspective.

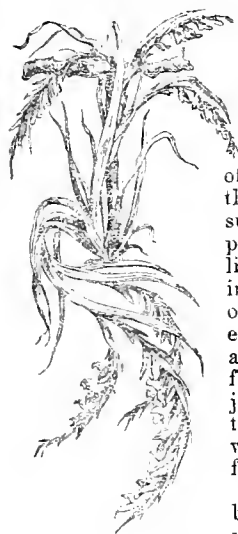
Each—s. d.	s. d.	Each—s. d.	s. d.
Large Fowls.....	6 0	Guinea Fowls.....	4 0
Smaller Fowls.....	5 0	Hares.....	0 0
Chickens.....	4 0	Rabbits.....	1 4
Goslings.....	8 0	Wild ditto.....	0 9
Ducklings.....	5 0	Pigeons.....	0 10

WEEKLY CALENDAR.

Day of M th	Day of Week.	APRIL 23—29, 1861.	WEATHER NEAR LONDON IN 1860.						Moon Rises and Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.				
			deg. deg.			m. h.		m. h.		m. h.		
23	Tr	Rhodora canadensis.	29.740—29.623	52—32	S.W.	.16	49 af 4	7 af 7	34 3	13	1 47	113
24	W	Pyrus pumila.	29.746—29.689	40—36	N.E.	.26	47 4	9 7	rises	○	1 58	114
25	Th	Sr. MARK. PRS. ALICE BORN.	29.991—29.872	55—37	N.E.	—	45 4	11 7	48 a 8	15	2 9	115
26	F	Bulbocodium vernum. [1843.	30.150—30.099	55—31	N.E.	—	43 4	12 7	11 10	16	2 20	116
27	S	Claytonia virginica.	30.223—30.219	51—23	N.E.	—	41 4	14 7	20 11	17	2 30	117
28	SUN	4 SUNDAY AFTER EASTER.	30.269—30.244	57—24	N.E.	—	39 4	16 7	morn.	18	2 39	118
29	M	Pulmonaria officinalis.	30.309—30.250	65—31	S.W.	—	37 4	17 7	14 0	19	2 45	119

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 53.8° and 36.8° respectively. The greatest heat, 81°, occurred on the 28th, in 1849; and the lowest cold, 22°, on the 22nd in 1859. During the period 133 days were fine, and on 105 rain fell.

THE EDUCATION OF YOUNG GARDENERS.



THE amount of education necessary for a young gardener previous to his undertaking a responsible situation, has been for some time occupying the attention of one or two of your contemporaries. But the amount of good that is likely to accrue from their various opinions on the above subject I am not at present in a position to surmise; but it is very likely to end as it began—namely, in nothing—as I am afraid some of them are recommending an education which they themselves are not possessed of, and, moreover, far beyond the reach of the majority of young gardeners—and if they were possessed of it they would seldom, if ever, require it for any practical purpose.

The following are some of the branches of education which I think we young gardeners ought to be possessed of—viz., land surveying,

wood and timber measuring, mason's and bricklayer's work, carpenter's and joiner's work, plasterer's work, glazier's work, book-keeping, and practical geometry. A gardener who superintends a place of any pretensions requires one or other of the above almost daily: and they are no more than what any young gardener may teach himself, and practise during the long winter evenings, which will be turning leisure moments to a profitable account, and will be of infinite value to him, if he is spared to undertake a responsible situation, which he would be very unsuitable for if he were not possessed of such knowledge. But a gardener may be well initiated in history, be a good politician, can talk French and Latin, be a good mathematician, geometrician, geographer, grammarian, botanist, &c., yet be possessed of a very indifferent knowledge of his profession. It is a true remark that Mr. Beaton recently made in THE COTTAGE GARDENER—namely, "All the learning, and all the education in the world, will not avail a man who wants a practical knowledge of what he takes in hand to do: and as there is no way by which a man's practice can be tested before he sets to work, all the tests of efficiency by education may turn out in empty bushels."

A gardener possessed of a first-class education would be but a poor compensation to an employer if he were compelled to use and treat his friends to inferior or worthless fruits, or when visiting the garden to be continually meeting with sickly or unhealthy plants and other unsightly objects, which can only be attributed to the want of practical experience and good judgment on the part of the gardener: therefore, I insist that a young gardener's first ambition ought to be to gain a good practical

knowledge of his profession, without which it would be utterly impossible to give an employer any degree of satisfaction. On the contrary, it would cause an employer to remonstrate with him on the small success attending his labour, which too often ends in a separation—a procedure which is not very satisfactory to an employer any more than it is to the employed.

Having thus far glanced at some of the most essential branches of education necessary for a young gardener who is about to undertake a responsible situation, I will, with your permission, make a few remarks on the class of establishments out of which a good gardener is likely to be obtained.

A good many noblemen and gentlemen are of opinion, when in want of a gardener, that the best place to apply for one is at a first-class establishment. For so doing they are in a great measure justified: because, if a young gardener has held a responsible position in one of these establishments for two or three years, and during that time has given his superintendent every satisfaction, he also is a likely person to give satisfaction to an employer, as the majority of head-gardeners in first-class establishments are men whose practical abilities are in unison with the places which they hold: consequently the instructions which they would impart to such a young man relating to his various duties, would be based on such sound principles and long experience that the young gardener would become in a great measure a stranger to failures.

Nevertheless, there are others that are rather prejudiced against taking a gardener out of a first-class establishment; and they are not void of a reason for being so, as they are aware that many of the superintendents of the above places require premiums from young professionals for merely allowing them to work on the establishment, giving them a promise to assist them into a more remunerative situation. A young man's professional abilities are sometimes a secondary consideration with these wholesale dealers in gardeners, and the more demand they have for men to fill responsible situations, the faster can they pocket the premiums.

Employers are also aware that the greater part of the majority of these young men's time is employed in one particular department, consequently they must be very often in ignorance of what is going on in many of the other departments: therefore, unless these young men are pretty familiar with the various branches of their profession previously to their entering into one of the above establishments at all, their chances are few to become familiar with them after. Nevertheless, out of one of the above establishments a gentleman may obtain a first-class gardener, as a good many of these young men are well initiated into their profession previous to their entering into the far-famed place at all—their object in going there being merely to facilitate their getting a better situation.

I must also beg leave to make a few remarks on the gardeners employed in second-class places. A great many of these men are as good practical gardeners as their more fortunate brethren. It is even necessary that

they should be the better gardeners of the two, as there may be some of their employers who are very partial to their garden, yet from circumstances are unable to expend the amount they could wish either towards improvements or keeping them in proper order: therefore, it is necessary that their gardeners should be of first-class abilities, that they know the value of labour, time, and money, that they know what improvements really are, and the best and cheapest modes of accomplishing them. A gardener in a first-class place, when effecting a supposed improvement, if it fall short of the desired effect may pull it all to pieces, it being no matter what expense it may have occasioned, and he may try again on a different plan.

How many gardeners are there in second-class places that could practise the above and give their employers satisfaction? Such a gardener, also, to some extent finds it necessary to study the various tastes of the men whom he may have under his charge. As he finds that some are more partial to, and can accomplish some kinds of work with greater alacrity than others, therefore, he tries, as far as practicable, to let each man have his favourite work, for by so doing he can have it better done and more of it, without showing in his manner the least appearance of tyranny—and when he has to correct a man, it is with as much deference as the circumstances of the case will admit—his words are few, but they are to the purpose. In short, he avoids everything that would tend unnecessarily to wound the feelings of the anxious-to-do-well workman.

Such men are not only respected by the working men, but they are as highly respected by their employer, who in time looks upon his gardener almost as one of his own family.

I am sorry there are exceptions to the preceding remark. The gardener is not always appreciated according to his value, or as a trustworthy anxious servant ought to be; but when he has spent the noontide of his days in a master's service, that master invents some lame excuse to part with him, in order to avoid providing him with the means to assist him to a crust of bread, or to smooth the pillow of an old but honest servant. I hope such employers are few, and I hope there are fewer old gardeners depending upon the charity of such employers.—AN UNDER-GARDENER, *Sudbury Hall*.

A TREAT FOR AURICULA LOVERS.

"STILL harping on my daughter?" "E'en so may friend Othello say. And why not? Is she not charming, "all my fancy painted her—lovely and divine?" I advised, some time ago, any one who wanted a treat in flowers to run down and see the Slough Auriculas; and not being willing to advise what I do not practise, I took a recent opportunity of being in London to make the trip myself; and having undergone the operation, I can most conscientiously recommend any whose eye is at all educated for such matters to follow my example. It may be this will fall under the notice of some reader who heaves a sigh at the recollection of what he formerly did in that line and now has abandoned. I say to you, my friend, Go down. The virus will probably take, and you will again find yourself numbered amongst the honourable fraternity. Or some one who, rather sick of nothing but bedding out, desires to cultivate some florists' flower. To you I would say, None so worthy of your care as this. "Pooh, pooh!" I hear some say, "that's all very fine—that's what every one says." Then Lady Jemima calls all her acquaintances to admire the beauty of Fidèle—a nasty, wheezy, fat porpoise of a spaniel. While Tom Rattler bids you observe the beauty of his superlatively ugly Skye terrier, Dr. Dryasdust bids you run off to Kent and admire the sublime grandeur of Richborough Castle—and you only see a dry, crumbling wall. Mr. Sirlolm bids you mark the beauties of that beifer he is about to slaughter, discourses severally of its points, and tells you how perfect she is—you see only an obese round-barrelled-shaped brute, the best part of which will go to the cook's tub and the tallowchandler's vat.

Ah, well! our hobbies are, I suppose, all equally absurd to those not interested in them, and equally valuable to ourselves; only let us not ride them to death, which, by-the-by, some may say I am now doing. To vindicate myself, I will just say what a florist will see if he follows my advice:—A large frame, containing a first-rate collection of Auriculas in full bloom, consisting of all classes and of a large number of varieties, both new and old, in the fullest vigour, perfect health, and full bloom. Of course, to many eyes they will seem too stiff and regular to have any real beauty in them—very curious, doubtless, but by no means handsome. Now I say they are unique—that there is nothing in the whole range of floriculture like them. Here is one—a truss of brilliant blue or light purple. Here is another of deep crimson. Here another of maroon. Here one, the edge of which is a brilliant green, with a deep rim of intense black inside a pure white circle, and a yellow eye—a quadricolour, in fact. Here, again, one with a soft grey edge and a splendid violet band, and yet another white-bordered. Then, again, look at the foliage. While some are of a brilliant green, here is another with leaves as white as if the good housewife had dredged them all over with flour; while another has a beautiful thin line of white running round a green leaf, like the silver braiding on a uniform, another has a white line up the middle of the leaf: and therefore I say, both in foliage and bloom they are quite unique.

There is, too, here a fair field open for the hybridiser; for the accessions of late years have just shown that, while here and there a few flowers of surpassing excellence have been raised, they have been so few as to show that more care must be exercised: and let it be well known that, amongst florists, he will be considered A 1 who raises a first-rate Auricula.

Amongst the new kinds which I saw in bloom were—Smith's Richard Cobden and Lord John Russell, Spaldry's Metropolitan, Smith's Lady Sale, Charles' Mary, Headley's George Lightbody, Richmond's North Star and Volunteer, Turner's Rev. George Jeans, and Chapman's Maria. While amongst older varieties were remarked as very fine—Taylor's Glory, Drew's Lady Jane Grey, Spaldry's Blackbird, Netherwood's Othello, Maclean's Unique, Smith's Waterloo, Waterhouse's Conqueror of Europe, and Popplewell's Conqueror.

Nor were Auriculas the only things worth seeing. Cinerarias also were very fine. A good race of self-coloured varieties has been raised. Brilliant has been exceeded by Duke of Cambridge and Adam Bede; while a seedling of last year, though somewhat coarse, is likely to prove valuable as a flower of Brilliant colour—the Rev. Reynolds' Holo. Miss Eyles is a most free-flowering variety—white, with a brilliant border of earmine. These two, with Maid of Astolat, are decided acquisitions, brilliancy of colour being joined with excellency of habit.—D., *Deal*.

CROSS-BREEDING FLORISTS' FLOWERS—A RIBBON-BORDER FOR THE MANY.

If I were disposed to write on bedding plants as against florists' flowers, and if my race and kindred had been of the Mac Ian Mhor kith and clan, I could not have coveted a more competent rival in the lists than "D," the writer on Florists' Flowers in THE JOURNAL OF HORTICULTURE. To aspire to break a lance with a better-mounted knight, or with a cavalier of less fresh fame than he who lusts for fortune in a fray, is neither prudent nor peculiar in our day: therefore, if I came out of the fray second best, all they could say about it could only amount to a want of prudence or a desire for notoriety—two things bad enough in themselves, which I could afford to turn to good account in an encounter between beds and circles, between substance, shape, and colour, or between a "D." on one leg, and a "D." with a "B." to banter with. But just now we are too busy to entertain such notions; and all I want to say is this, that if the florists do really hybridise their breeders as "D." says in last week's impression, I can spare them the one-half and the most difficult part of their labour entirely by one stroke of this pen. With two exceptions—the Fuchsia and Pelargonium, there is not a single or double florists' flower on record which needs hybridising at all, or which will produce a better seedling from all the knowledge of the cross-breeder. And even more than that—hybridising can only spoil some few kinds of florists' flowers from the moment the kind is improved as to be worthy the attention of a florist. Not a word of this is on hearsay, I have proved every word of what I assert.

But this law in crossing flowers goes very far beyond the province of the florist, and of the flower-beds. One party who took up one side of Mr. Darwin's ideas on the origin of species, are quite as much at fault as he who believes he has effected a cross because he went through the process of introducing strange pollen to the pistils of all his seedlings for a quarter of a century. I am not quite certain that the Hollyhock might not be relied upon for giving one-half of the merit of seedlings to the effect of crossing; and I know that to balance that, one-half of the merit of seedling Fuchsias is not due to cross-fertilisation. I was the first man, and, I believe, the only individual who ever crossed all the wild Fuchsias, &c. Thirty years since I proved the origin of several Mexican species of Fuchsias, and recorded the facts; and although I have not crossed a Fuchsia for the last twenty-five years, I am perfectly cognisant of how the law of crossing affects them.

One might think—and a florist who only crossed florists' flowers would never find out the difference—that a law would apply equally to all families of plants. That is far from being the case, however. But, to understand that, know that under cultivation every plant that is crossed is at the same moment under the influence of two sets of laws, and may be under many more.

The first law is, that the organs of reproduction be ripe or ready for the process of crossing. The second law is, the degree in which both the parents are different from their natural law of growth in a wild state. There is no plant in cultivation in the exact state it enjoys in its wild nature. It is either so much better off or so much the worse; and the degree of so much better or so much worse, is the second law I mean.

Then follow the laws of how these degrees are brought about; and here is where nothing that we yet know of can guide a man save actual experience, for the law acts very differently on two genera which are exactly under the same process of culture; so that your experience on one of them is not, or at least may not, be of the smallest use to you in your dealings with the second.

All our real English florists' flowers are improved only by an improved system of culture. The Dahlia, the Pelargonium, and the Pansy are far more improved by the highest cultivation than the Clove tribe, as Pinks, Picotees, and Carnations. Their degrees are different, and the foreign pollen is not of the slightest benefit or the smallest injury to any one of them.

On the other hand, your very highest degree of superior cultivation goes entirely for nothing in crossing Roses, or in raising seedlings of them without crossing: therefore, they must be under a third law, and I know at least seven more laws, making ten distinct laws, which affect crossed flowers in one way or another. But if I induce a new flower to cross, I cannot tell, and no one can tell me, which of these ten laws governs it most, or if even one of them affects it at all.

When a man tells me he has taken to crossing his flowers from reading the ways of cross-breeding in THE JOURNAL OF HORTICULTURE, and he finds now he can do anything, I compliment him of course; but I am at the same time well aware that our Journal is not yet of sufficient age to have taught him any such thing. At the end of a dozen years of extensive crossing, a man at least can only be sucking his thumb on the subject. I, who have sucked both thumbs on it since 1818, am obliged to own how very little I really do know of the laws by which vegetables are governed for good or ill in cross-breeding. But I know quite well that florists will raise as many good seedlings without foreign pollen as with it, with the said limitations. Let them only try and tell the result. Then, but not till then, shall I be able to show them just as clearly and with much less writing, where they and their humble servant mistake means for ends and ends for means. We are both of us so far in the wrong.

But, bless me, what I was going to say was, that I saw more spring flowers this spring than I have seen for the last ten years put together, and that among them was *Ranunculus amplexicaulis*, of which I had known a gay bed in March, 1823, 1824, and 1825 at Altyre, near Forres. It came in before the white *Arabis præcox*, *alias* alpina, and lasted longer and was as white; but the bed was not just so telling as the one of *Arabis*, because there was more room between the flowers to see the green leaves.

In those bygone years we began the year with Snowdrops, Crocuses, *Ranunculus amplexicaulis*, and *Arabis præcox*, as "D." says the florists now do with Pansies and Auriculas; but ours at that time ended with the Naked and Painted Ladies—the autumnal Crocuses.

Pansies were not thought of then, and double Dahlias were not so common nor one-half so gay as the single ones. Auriculas were then at their prime, and Polyanthus—I mean both as florists' flowers—were just beginning to decline in favour. Pinks and Carnations were as hotly cultivated as at this day; and we had a yearly supply of Picotee seeds from Naples, and beds and borders of seedlings of all the florists' flowers of the day that would surprise some of the great growers of the present day. The father of the present Duchess of Sutherland, before he was married, was a welcome visitor at Altyre; for he, too, was fond of florists' flowers, and first taught the baronet who now enjoys the place to know and like them for their own sake.

But in my capacity of a paid advocate on the other side, I have been often requested to propose a kind of John-Anderson-my-jo-John sort of ribbon-border for the million—one that a duchess might go to Court in; and, at the same time, one that the old woman who opens the lodge gate might set up as her own ensign of decorative principles, without seeming to appear to her betters to be aiming at the frivolities of fashion. I have stedfastly held to the opinion, however, that, in order to improve the taste of our people, the best plan to pursue is to give unbounded scope to all degrees of taste among them, to induce them to open their minds confidentially as to their own ideas of any particular taste in planting, and then, without making a parade of their lack of knowledge of the principle on which they acted, to show them how to square it with the principles of the present fashion. That, I am convinced, is the true way to act when you have to do with all degrees of ideas of taste. Make no efforts to change a taste or to make a covert in taste.

Nevertheless, I cannot foresee any great harm that could come of a John-Anderson-my-jo-John ribbon-border, only that I would not be supposed to insist on it. Here it is, therefore, and I do assure you I like it myself.

The length is to be the whole run of a border, either straight on or bended gracefully into curves; all you will have to do will be to plant every part of each row at the same distance from the edge of the border. This season the first row must be of *Cerastium tomentosum*, planted in a single row, 4 inches from the side, and 4 inches plant from plant—the smaller the bits the better, and allow 1 more inches on the off side to spread, or 8 inches when the plants are at full run. From the middle to the end of April is the best time to do this; and if there is a close row of Crocus leaves in your way, plant two rows of *Cerastium* 6 inches plant from plant, one row in front, and one immediately behind the Crocuses. When there is a chance, put in bits of *Cerastium* between the patches of Crocus; give them a good watering, and repeat it till the first rain comes; and as soon as the *Cerastium* begins to spread, train it so as to fill the first 8 inches. Next year the *Arabis variegata* will be the front.

The next row makes a marked contrast being a deep dark blue *Lobelia speciosa* from seeds. Sprinkle the Lobelia seeds very thinly over a shallow box filled with light mould; damp a piece of flannel, and stretch it like a bladder over the box, keeping the flannel damp and warm, till you see the seed sprouting. You know all the rest without my John-Andersoning it. Ten inches you are to allow for the Lobelia; but to get it to cover soon, plant in two rows zig zag, and no more than 6 inches apart.

The third row is to be the softest of all, and all of *Stachys lanata*, which is as hardy as the daisies on the lawn, and spreads much faster than they, creeping along and rooting as it goes. Every little morsel of it taken up in April has roots to it; the smaller shoots to be planted only 4 inches apart, others at 6 inches, and some large pieces as much as 9 inches or 10 inches. This is to cover exactly 15 inches across, and must be set in two rows to get it to cover as soon as possible; but this is such a strong-growing plant, that it might be transplanted thus in January, February, or March just as well as in April.

Every row of a John-Anderson-my-jo-John ribbon must be replanted every spring. But the old woman at the lodge says that a light blue that would beat all the blue Lobelias in the world, and bloom long after they were gone, is the worthy *Viola calcarata*—the most running, the most hanging-down, and the most flowery of all the Violet tribe. To be done exactly like *cerastium* or *stachys*, and to be allowed 1 foot to spread over; then it blooms from May to October in light soil, and carpets the ground. The coldest, the most dreary and most bleak spot in this island is a little to the south-east of Peterhead in Aberdeenshire, close on the sea; and I shall guarantee that none of these first three lines of a ribbon would have lost a leaf there last winter. The *Cerastium* and *Viola* would bloom there

also in contrast; but *Stachys lanata* must not be allowed to bloom in rows.

The next row must be *Perilla nankinensis*—from seeds, of course, to cover 15 inches more or less, to be planted slantingly along the row, in order to half training it. But some of you must give the seedlings to the woman at the lodge. And if you have the love of glare in you, stretch down the next row full of *Calceolaria integrifolia floribunda*, stout old plants; but if you prefer form to colour, and contrast to substance, as florists do, down with the *Calceolarias* to the lodge, and up with a magnificent silver band of *Antennaria margaritacea*, and make it 18 inches wide and about the same in height. You will find it mentioned in my chronicles of last season from Hampton Court, and in almost all the cottage gardens from here to Faversham. The shoots from the stools of last year are now white as snow, rising 2 inches to 3 inches above the surface of the border. You are to take these and their like, year by year, at this time of the season, with 2 inches of root-stem to each, and no more or less. You are to plant them, also, at 6 inches, or 8 inches, or 9 inches apart, according to your stock or their strength; and to make sure of my jo-John, you ought to plant three rows of them to cover the space of 18 inches at once. The flowers are like golden cups set in silver saucers; and if the leaves were green the flowers would tell as much as those of *Calceolarias*. But my plan does not require flowers at all: they may, however, want a row of hidden sticks, and a string in front of them, to keep them upright; but if they are not flowered they will scarcely need it.

The fifth row is to be of two of the oldest plants of all from seeds, hardy and self-sown if you like. The one is purple *Orach*, the other *Persicaria*, plant for plant along the row; or, what would be better still, one row of each, the *Persicaria* being a foot or 15 inches behind the purple *Orach*, which is called in nurserymen's catalogues *Atriplex hortensis rubra*. The old *Persicaria*, as it was designated forty years back, is now called *Polygonum orientale*. Tournefort first discovered this good old annual in a prince's garden at Tiflis, beyond where the siege of Kars was held out against by some of our people, when the rest of our Crimean heroes were in the midst of the fray; and to this day it is the prince of all the hardy annuals, for both it, and the *Orach*, and the rest of the plants on this border, are as hardy as the common crocus.

But behind these, and as like cottage flowers as any, three rows in close succession of old-fashioned *Hollyhocks* will finish the first "ribbon-border for the many" without a pane of glass if you do as I said. But the best work on making ribbon-borders, and the one which prompted me to compete with the author, is the bedding-plant catalogue of Mr. Scott, of the Merriott Nurseries, of which, as you will see in the last JOURNAL OF HORTICULTURE, one blue post stamp will procure a copy. Besides, the catalogue is the best arranged for young beginners of all that I have yet seen. D. BEATON.

TREATMENT OF ARAUCARIA IMBRICATA INJURED BY THE WINTER.

I HAVE an *Araucaria imbricata* about 17 feet high, healthy and strong, and uninjured prior to the frost in December last. That frost killed all the branches for 4 inches or 5 inches from their ends, and the wind has blown twenty or thirty of the dead parts off. Should I do anything to the tree, or what course would you advise me to adopt? I see no alteration in the appearance of the tree except the dead parts. The leader is browned, but I do not know whether it is killed.—J. G.

[Yours is a most important question at this moment. It is now just the time to cut back all *Araucaria* branches whose tops have been more or less killed by the frost. Cut below the frozen part; and if there is a dark brown ring seen on the cut end you must cut lower till no dark brown ring is seen, because the dark brown is the form of death in *Araucarias*, and death is often much deeper or lower down than one might think from the looks of the bark and leaves over it. The leader to be served as side branches, and the best-placed or more vertical bud on the stump must be trained to renew the leader, and encouraged to do so by discouraging all those shoots that might aspire to the leadership. If more than three buds start on a side branch after it is cut, reduce them to three, the three best placed to run out that branch, one straight a-head, and one on each side of it.

This answer applies to every member of the family of Conifers; for if one of every species and variety of Conifer were to lose the leader and the tops of all its branches, nothing more could be done to advantage them so much as attention to these simple rules, and every one of them would renew the leader if thus taken in time. We shall be obliged by a brief account of the losses among your shrubs and Roses—merely a statement of the loss, the different degrees of loss, the soil, situation, and part of the country.]

EFFECTS OF LAST WINTER UPON PLANTS

IN VARIOUS PARTS OF ENGLAND.

(Continued from page 38.)

LINTON PARK.

As your columns, in common with those of all similar publications, have of late recorded the destruction the past winter has caused amongst shrubs, trees, and, in fact, throughout the whole vegetable kingdom, and as the icy king seems to have visited the whole kingdom with more or less intensity according to circumstances, but in all cases more severely than on the average of years, it is not surprising that we hear of much injury done. This was, doubtless, much increased by the condition most plants were in at the commencement of the cold season. A dull, wet, sunless summer had delayed the growth of everything until late in the autumn; and the latter being comparatively mild until an unusually severe frost set suddenly in, and everything being charged with the juices of the growing season, it need not be wondered at their suffering so much. Even those trees and shrubs which had ceased growing, had done so rather by the chills of autumn paralysing their growth than by having ripened their tissue, and the soft succulent condition they were in rendered them an easy prey to king Frost. Many of the plants now complained of as being killed by the winter were not in a condition at its commencement to resist its influence. But we may learn a useful lesson from those which have survived; and by a comparison of the relative positions of plants of the same kind, which in one instance have been killed, and in another have lived almost unscathed, we may ascertain the condition most likely to conduce to a plant's hardihood; for if a *Laurustinus* be killed down to the ground in one place, and scarcely injured in another but a short distance off, we are justified in supposing other plants would have been acted on in like manner if placed in similar positions. And as some districts have been visited with more severity than others, and the injury or destruction has varied accordingly, we hope to have the various reports duly chronicled in THE JOURNAL OF HORTICULTURE. For instance, a lady writing from near Birmingham informs me her Roses are completely killed, and scarcely an evergreen of any kind is left, a similar complaint from the south of Yorkshire, and even in Cornwall the winter has been felt to an unusual degree for that county. But as we may hope to hear from all these places, I will content myself with reporting the injuries we have sustained here (Kent), and also mention those things that have escaped with little or no damage.

In the first place, I may mention that, in common with every other district, we had a dull, wet, cold summer, and the autumn, though cold, was accompanied with less frost than is usual at this season; but some frosty mornings about the end of October injured the *Geraniums* and other tender things on the flower-beds which the rains had so previously bleached and disfigured to a hopeless degree, that the bulk of them were at once cleared away—in fact, it was fairly time, in accordance with the custom of former years. But some few were left; and two beds of *Mangles*' Variegated remained entire in an exposed place in front of my cottage, and, strange to say, these beds looked absolutely better on the 17th of December than at any previous time during the season. They recovered from the October frosts, and, the next six weeks being mild, they grew on and recovered themselves; but a sudden and severe frost set in on that night, and continued unabated for upwards of a month. Now when we consider the mildness of the season preceding the frost, and the growing condition many plants were in at that time, we may easily account for the sudden and disastrous check they received. Some shrubby plants which had stood some winters with us before were making a perceptible growth the last few days before this frost set in. Had this frost been preceded by a period of dry, cold, windy weather or slight frosts gradually checking and hardening vegetation, the destruction would have been much

less. As it was, many plants in a growing state had their juices scaled up the first night with their death-warrant; others imperfectly ripened suffered less in degree, still they were hurt; and as the last few winters had been tolerably mild, many plants had been left out of doors not usually met with there, and these, of course, have suffered most, as will be shown by the following list, to which a few notes on each are appended.

Acacia verticillata.—A fine plant of this, growing against a west wall, flowered beautifully every spring for some years, and in the autumn was thickly set with buds again, but the frost has entirely killed it. A few laurel boughs stuck against it were all the protection it ever received, and it had the same the past season, but to no avail—it is completely killed. A plant of *A. armata*, after lingering on a year or two, was killed the winter before; but the one mentioned above was in robust health up to the time of severe weather setting in.

Abelia uniflora.—A small plant of this has stood against a south wall with very little damage, and with no other protection than a few laurel boughs stuck against it during the severe weather.

Azalea indica.—One or two plants in sheltered positions against a wall very little hurt; but some plants in an open bed are killed to the ground. They were, however, not in good order in autumn.

Berberis Darwinii.—This is certainly one of the most hardy plants we have, and richly deserves a place on every wall. It does not seem to have taken the least harm during the past winter, and at the present time (20th of March) is loaded with flower-buds which in due time will show themselves. *B. Fortunei*.—I have never been able to make much of this. A shabby foliage and slow growth are a poor compensation for the few flowers which it produces. *B. japonica*.—A small plant of this does not seem to have suffered in the least from the winter. Its position, however, is not well chosen, as its foliage suffered even from the little sun we had last year. *B. Bealii* is much like it in appearance and habit.

Camelia.—A large plant of this on the lawn was loaded with flower-buds in the autumn, but they were all killed with the frost, and have all fallen off, and it has shed more leaves than I should have liked to have seen; but those that remain and the wood-buds are all right, proving the plant to be as hardy as the majority of evergreens.

Ceanothus papillosus.—Killed to the ground without the slightest hopes of recovery. A fine plant, had endured several winters, and bloomed profusely in the early summer; but it is lost now. *C. pallidus*, *divaricatus*, or *dentatus*, for I have heard it called by all these names.—It has a bright-shining green leaf, grows rapidly, and flowers sparingly. Some plants in exposed places are killed, and even against a south wall one or two are all killed but the thick main stem, but two plants in a more favoured spot are but little hurt. *C. azureus*.—This is perfectly hardy, only the tip ends of some of the shoots with some of the foliage are hurt, the main plant promising to become as ornamental at the proper time as before. This fine variety flowered twice in the hot summer of 1858 and 1859, once in the early part of June, and again in September.

Coronilla glauca.—Killed to the ground and below the surface in all but one or two very favoured spots.

Cotoneaster Simmondsii.—This broad-leaved variety has stood well against a bleak north wall. It promises to be a useful addition to this class of plants.

Chinese Privet.—A large plant of this, which for some years flowered abundantly in August and September, did not open its blossoms in time to become fully expanded before winter set in, and they are there now. The tree has taken no harm, but it is not likely that there will be any bloom the ensuing summer.

Clianthus puniceus.—A handsome plant of this, growing against a south wall, was in the very worst possible condition to resist frost. For the first fortnight in December its shoots were still advancing, and covered with flower-buds, some of which were expanded. Such a state of things gave little hopes of its enduring the long-continued frost, even when covered up with a double mat; and the result is that it is killed down to within a few inches of the ground, and there is great uncertainty of its growing again. I regard this and the *Acacia* as the most serious losses we have had in this way. Another plant of the same kind suffered in like manner.

Colletia Bictonensis.—This singular-looking plant being removed about a year ago did not prosper well last year, and I fear it is killed. It was quite unprotected.

Cupressus funebris.—One plant in a low situation a little hurt, another in higher and drier ground unhurt in the least. *C. Lambertiana* is as dense and green as it was in October, and is a fine object.

Cistus ladanifera.—Quite hardy, not injured.

Cork Tree.—A fine specimen of this is much injured in the foliage, but we hope not seriously hurt in any other way.

Desfontainia spinosa.—Quite hardy, not the least hurt by the frost, but it is of slow growth, and has not flowered out of doors here yet.

Escallonia macrantha has its leaves browned much where standing as an open standard, but against a wall it has not taken much harm. *Escallonia Monte-vidensis* has lost more foliage than usual, and the tip ends of the shoots are all killed, but the plant has not taken any vital harm.

Eugenia Ugni, and *E. apiculata*.—The first-named is certainly the most hardy, as the latter has lost a large limb or two, the foliage remaining being unburnt.

Euonymus japonicus.—These as open bushes are all more or less killed, and some I fear will hardly grow again.

Fabiana imbricata.—Beautiful as the flowers of this plant are, it will never take a first place as a covering to a wall, the sickly-looking hue of the foliage being sadly against it; but it has stood the winter not amiss, though not seatless, and a small plant of it is killed.

Forsythia viridissima.—Quite hardy, but the tips cut with the frost. There are, however, little signs of its blooming this season.

Garrya elliptica.—The leaves a little blotched, but the plant not seriously injured. Its graceful-looking catkins were less plentiful the past winter than heretofore, owing to the unfavourable summer no doubt.

Griselinia littoralis.—Quite hardy, but rather a slow-growing shrub; and as it strikes freely from cuttings, I dare say, when Mr. Appleby can induce any of our floral friends to try the effects of evergreens for display instead of the ordinary bedding-out flowers, this will come in very handy. A pale green foliage, very thickly set on shoots that promise to bear cutting well. It will, no doubt, be a favourite in that way.

Hydrangea.—Most of these lost the greater part of last year's growth by the wood not being ripened, and leaves still on when winter set in.

Illicium floridanum.—Also of slow growth, but quite hardy. It has not showed flower yet. Against a wall it stands the winter well.

Jasminum.—These are quite hardy; and the *J. nudiflorum* is now flowering instead of at Christmas.

Laurus aromatica seems hardy but makes no progress. If it would only grow freely it would be a handsome shrub.

Lonicera flexuosa, or Evergreen Honeysuckle, has lost more foliage than usual; but is alive at the base of each shoot, the tips being killed.

Magnolia grandiflora and *M. Exmouthi*, very much cut and have lost nearly all their leaves. Some plants growing against a south wall had several unexpanded blossoms when the severe weather set in at the middle of December; but, of course, they have been all killed, and the plants, by losing so much of the tips of the shoots, will be crippled for the whole of the year, that we can hardly expect bloom in any quantity for two years.

Myrtle.—Much injured, but not vitally. The foliage nearly all gone; but, by being spurred in, the plants will do very well again.

Pampas Grass.—Some plants quite killed, others nearly so; and the flowers of 1861 will assuredly be late, unless the season be a very favourable one indeed.

Phygelius capensis.—Standing against an east wall this plant has suffered less than many, and promises to be a useful auxiliary to our list of half-hardy, half-shrubby, and half-herbaceous flowering plants.

Pomegranate.—We have only a very small plant of this and recently planted, which seems to have suffered to a hopeless degree; but this is no guide to the plant's hardiness or contrariwise.

Pernettya mucronata speciosa.—A pretty small-leaved shrub, quite hardy and untouched by the frost. This seems as hardy as the common Box.

Rose.—This extensive family may be dismissed without going into names, further than that all the Tea kinds are killed; but hardy China and Hybrid Perpetuals are alive. The China, however, are in most cases cut down to the ground, but are growing again. A Banksian or two against open pillars are either killed

outright or so far injured as to be useless; but our loss amongst the Roses here is trifling, compared with what is reported elsewhere of the Hybrid Perpetuals, these being unhurt, and some of the Teas on standards in dry situations have escaped.

Stawtonia latifolia much cut but not killed, although growing against a south wall.

*Veronica*s of the New Zealand species, as Andersoni, Sieboldi, Lindleyana, and others, in most cases killed entirely. Some against walls in favoured places may perhaps shoot up again from the bottoms or from the old stems that show a little life in them.

Weigela rosea.—This appears quite hardy, and is shooting as freely as ever from all but the extreme tips of last year's wood, but it is not likely to bloom so freely as in former years.

Yuccas.—These interesting plants have suffered in a certain degree, their leaves being broken, and the plants altogether seem much injured in appearance.

The above list represents the damage we have sustained in the class of hardy and half-hardy shrubs, as all our Bays, Laurustinuses, Aucubas, and others have escaped any important injury except in some cases where Laurustinuses had formed part of a clipped hedge, and the late shoots of last year are killed, and one or two other plants have suffered in like manner where so situated. The Pinuses have, in most cases, escaped. None of the Deodars are in the least hurt. *Araucaria braziliensis* or *Cunninghamii* looks badly, but it has always done so at this season, and a fine plant of *Wellingtonia* is browned a little on the east side where the morning sun first caught it. *Cupressus Lambertiana* is as green as a Holly, and all the other Pinuses seem untouched by the cold.

Amongst plants of humble growth everything not established as hardy has been killed. The hardy *Verbena pulchella* and its variegated compeer are both destroyed, as is also the *Linum flavum*; and what few *Calceolarias* were left out have all perished. This is, doubtless, owing to the small quantity of snow we had—merely sufficient to colour the ground; but the severity of the frost told in cold pits as well. The *Calceolaria amplexicaulis* cuttings in a pit with a wooden shutter over them mostly all perished, while the more woody varieties of *Calceolaria* scarcely received a check, or at most lost very few plants; and the variegated *Arahis* growing in the same place is equally unhurt. I may also observe that the outside plants of this most useful dwarf edging plant seem as hardy as a Primrose, not being in the least injured by the weather; but some plants have succumbed to the cold. Very few *Catchflies* are alive, and old plants of *Cheiranthus Marshalli* are, in many instances, dead. Stocks are also entirely killed, and many Wallflowers are sufferers also; and I have no doubt but a close examination will reveal other losses in this way.

In the kitchen garden Broccoli are very scarce; almost all the tall plants are entirely killed, but some dwarf kinds are left. Winter Spinach is all but gone; and Parsley, which usually survives any amount of cold, has died away in a great measure at the root. Cauliflower plants where not well secured have suffered sadly. Cabbage plants are better; and though Greens of the various kinds have been scarce, still the plants have not been so completely killed as has been the case in some places. Turnips we have none, but their absence is not entirely owing to the weather, as our supply is generally from another source. Sweet Herbs have perished almost wholesale. Thyme, Savory, and Mint seem all gone, and Sage very much cut. Some other losses may, perhaps, be added to these, but the list is already extensive enough; and though no one wishes for so severe a winter again, it has not been half so bad as the summer which preceded it. On the contrary, the frost has certainly improved the land for tillage purposes, and with a favourable season we may hope to have a more pleasing report to make another time.

J. ROBSON.

KILMARNOCK PANSY SOCIETY.—On the 12th inst. the West of Scotland Pansy Society held their first Meeting. The business was, for the most part, of a preliminary nature. A few good flowers were exhibited, the best of which was General Neil (Smith's), a first-rate yellow ground flower, which can hardly be beaten in the beginning and end of the season. The Society will hold fortnightly competitions throughout the season; but the most important part of the Society's operations was the appointment of ten of its members (five a quorum), to adjudicate on the merits of any new varieties that may be forwarded by members or others. From the well-known abilities of that

Committee, and the ordeal all flowers that are submitted must undergo, it will be impossible for anything not in advance of existing varieties being recommended or awarded a certificate of merit. This branch of the Society has been attached with the view of checking the practice of sending out worthless varieties, which has latterly become far too common an occurrence. Single blooms may be recommended as such; but three blooms must be submitted at once or in succession to obtain a certificate of merit. The West of Scotland has long been characterised as a great Pansy-growing district; and many of the leading varieties owe their existence to the growers of that beautiful flower in this locality; and were other districts to adopt a similar course, that would materially assist the West of Scotland Society in their laudable endeavours to further improve the Pansy.

CULTURE OF THE GRAPE VINE.

(Continued from page 44.)

THE borders should be made and finished as early in the autumn as possible, that the soil may be settled down to its proper level before planting time. Some authors recommend planting after the Vines have made their spring shoots in boxes, baskets, or pots. I have tried that plan, but I found that the roots could not be so well spread out in the soil without injuring some of the newly-made ones. I, therefore, greatly prefer the planting just before the buds begin to swell: in that state the soil can be shaken out of the ball, and roots disentangled without injury, and spread out in a proper manner in every direction. On this point, however, I shall write more particularly under the head "planting."

PROCURING THE PLANTS.—If the cultivator intends to purchase his young Vines from a nursery, he ought to go to the nursery early in the autumn, and choose the plants himself, marking them on the spot at once. Well-grown one-year-old plants raised from eyes are the very best for the purpose. If they are older the roots are so coiled round the sides of the pots that they cannot be uncoiled without some being broken, cracked, or bruised. Nurserymen now grow one-year-old Vines quite strong enough for planting permanently. The Vines should be sent to the purchaser as soon as their leaves are fallen—not later certainly than the end of October.

As soon as they arrive they should be unpacked carefully, so as not to crack any of the shoots. Let them then be pruned to such a length as may be required. If they have to be brought through a hole in the front sill of the house, then prune them so as to leave from four to five eyes within the house; but if they are to be planted inside, then cut them down to three eyes. When all are pruned then plunge the pots either in leaves, old tan, or ashes, against a south wall, where they may remain till the planting season. If the Vines are intended for the open wall they may be planted out at once, protected with litter over the roots. By being pruned in autumn there is no danger of bleeding, which they are liable to do if pruned just before they are planted.

Propagation.—Some gardeners raise their own Vines, but unless they have plenty of space or a house especially well adapted for the purpose, I consider there is no saving in rearing their Vines at home. Better have them from a respectable nurseryman—one, of course, that can be depended upon to send them true to name. However, as my essay would hardly be complete without a brief notice on propagating the Vine, I had better give the right way to do it. The Vine is almost as easy to strike as a willow. It may be propagated by layers, by lengths of two or three-year-wood, by a small piece of two-year-old and two or three buds above, and by single eyes of the last year's growth.

Layering is, or ought to be, quite discarded; for when a layer is cut off from the parent stool, it receives such a check that it requires two or three years (even with the best management), before it recovers the separation.

Old Shoots also require considerable care to make them push roots sufficient to support a strong young shoot. The two-year-old wood cut off a few inches below the point where the young wood of the same year has pushed from makes good cuttings, and with little care makes good plants the following year. I have grown good Vines by this plan fit to plant out the following year. The only objection is, that a stump always remains at the base of the Vine, which is liable to decay sooner on that account.

I now come to *single eyes*. These approach the nearest to seedlings, and for permanency form the very best plants. In saving wood for buds to raise young Vines, avoid coarse strong shoots; choose rather such as are round and of a medium strength, with as little pith as possible, and also choose the cuttings from Vines that have been forced early—not only because the wood is sure to be well ripened, but also the buds in the natural course of the season will be more easily excited to start early. Also prefer the buds that are nearest to the preceding year's wood, taking care, however, that each bud is plump and sound. Take off the shoots intended to be propagated as soon as convenient, label each bundle correctly, and lay them in by the heels on a shady border. Towards the middle of December place some soil, composed of fresh good loam, leaf mould, and very rotten dung, in equal parts, in a warm shed to dry. Have ready a sufficient number of pots $3\frac{1}{2}$ inches wide. Then about New Year's Day bring the cuttings inside, and cut them into short lengths, one bud to each length. One inch in length will be sufficient. The part behind the bud is then reduced in thickness, and cut off in a slanting direction towards the ends, and the part under the bud horizontal. The cutting will then have this appearance—



Fill the pots nearly up to the brim, and with a small dibble insert one bud or eye in each pot quite overhead. To prevent mistakes do all one kind first, and place a label or number to that lot before commencing with the next variety. This method of putting the eyes at the first in separate pots is much better than placing a number in a shallow pan, or wide-mouthed pot, because in repotting not a single root need to be injured. When all are potted and securely labelled, then place the pots in a propagating-house on a platform covered with sand. Under the platform there should be hot-water pipes, and there should be a sufficient extent of pipes to get up a heat of 70° . At first, however, a temperature of 50° will be sufficient, and raise 5° every week till the maximum is reached. During all this time a moist atmosphere should be kept up in order to cause the eyes to swell and break kindly. In a month or six weeks every bud will be breaking through the soil and forming roots downwards. Keep the soil regularly moist, but not wet, for too much water would cause some to damp off. As the leaves begin to expand more water may be given.

Examine a pot or two occasionally by turning out the ball carefully, and as soon as the roots reach the sides of the pots generally, then place a lot more of the compost in a warm place to air it. Cold soil at this stage would chill the young roots and check their growth. As soon as it is sufficiently aired, then begin to repot the young Vines, being always careful to keep them from draughts of cold air. I prefer, if possible, to repot them in the propagating-house itself.

Shift them into six-inch pots, giving plenty of drainage. These pots will carry them on growing till the middle of May, when a second repotting may be given them, placing them in eight-inch or nine-inch pots. They will now require more room and plenty of air, and liberal supplies of water, and liquid manure. Place a tall stick to each Vine, and look sharp after red spiders and destroy them. After a sunny day use the syringe freely, which will keep down insects and encourage growth.

In these pots they may be allowed to finish their growth—I mean such as are intended for planting out. They should make shoots in them 8 feet or 10 feet long, and as thick as a penholder.

If it is desired to fruit a few in pots, then give such another repotting in June into fourteen-inch pots, using more loam in the compost to give solidity to the wood. Vines for this purpose should be stopped when 10 feet long, and should have more light and space to each. I shall, however, give a more full description on this part of the subject under the head "pot culture."

By starting the eyes into growth so early as described above, the cultivator will have the advantage of getting his Vines into strong growth early, and thus be enabled to obtain good plants with well-ripened wood before the summer is over.

(To be continued.)

T. APPELBY.

TRAINING PLUM TREES—PEACH TREES UNDER VINES.

I HAVE your book "Fruit Gardening for the Many," and I find it very useful; but with regard to pruning the Plum trees (especially trained trees), I do not quite understand the mode adopted. Is it laying in all the side shoots (except breast shoots, &c.), without any shortening? and if so, how are the second year's shoots to be obtained, as there generally is but one wood-bud at the end of the shoots, and that would cause nakedness? Should the shoots be spurred in?

Can Peaches be grown to advantage in a house covered with Vines?—J. G., *Chelmsford*.

[The side shoots of Plums should be laid in, choosing those of medium strength, and cutting away the redundant ones if very strong or very weak. These should be far enough apart to permit of light acting freely on them. In general these side shoots should all be shortened less or more. This causes every bud on a young shoot to break, and most likely these will furnish little spurs which will bear for years. If they do not form a spur naturally, but grow on into breastwood shoots, these should be stopped when 3 inches or 4 inches long, and stopping continued a little to arrest mere rampant growth, to let the sun to the base-buds, and to cause such concentration of organised sap there as to make them assume the character of fruit-buds.]

The Peaches cannot be grown to advantage in a vinery, if the main stems of the Vines are closer than from 4 feet to 6 feet apart. The latter distance would be the best.]

FORCING.

KIDNEY BEANS.

A LATE crop of these may be obtained in autumn by sowing in a cold pit in August, and covering with glass at the end of September. A later autumn crop may be obtained by sowing in pots in September, and placing them where artificial heat may be given them by the middle of October. Fair spring crops may be grown in dung-beds after the middle or end of March. Seeds sown in heat on the 1st of April, plants hardened off, and turned out into a cold pit under glass, will produce freely from the end of May. Seeds sown in small pots, three in a 60-pot a fortnight later, may be turned out by the second week in May for the first out-door crop, receiving only the protection of a green branch on planting. All through the winter it is next to lost labour to attempt growing them without the assistance of fire heat in some shape or other. From November to January they need about ten weeks from sowing the seeds to gathering the pods. From January to May from eight to seven and six weeks. In the winter months I prefer growing in six or seven-inch pots, placing four or five seeds in a pot after it was three-parts filled with sandy loam and leaf mould. The soil must neither be heavy nor rich at this dark season. I have mentioned so many seeds in a pot, but I seldom sow where they are to grow at once. Economy in space is secured by sowing rather thickly in a moveable box, and transplanting when the first leaf shows above the seed-leaves. The plants are thus rendered more sturdy and more fruitful. At this season we stop none, which tends to promote earliness. Such plants when growing freely are earthed up with light soil a little richer, to within half an inch of the rim of the pot. As we get into January and February, we use larger pots, from 8 inches to 12 inches in diameter, much stronger and richer soil, and about four plants to a pot; and after that season we nip out the terminal bud when a joint is made above the seed-leaves. These pots will do admirably in any sunny spare part of a house, where the night temperature ranges from 55° to 60° , with from 60° to 70° during the day, and a rise of from 5° to 10° more in bright sunshine.

The plants are liable to the attacks of the thrips. The best preventives are plenty of manure waterings, and frequent syringings with clear soot water, at a temperature of about 80° . The thrips, however, even then may appear at times, and, therefore, it is best to grow them, when convenient, in a pit or house by themselves. Then, too, a bottom heat of about 80° may be given, in which they greatly delight.

A few lights will yield a long daily supply, and if cleared of old shoots, and no Beans allowed to get old, and fresh top dressings and manure waterings given, there is hardly a limit to the time they will bear. I have frequently had the same plants in bearing from January to June; but I would not advise such

a plan as being anything extra economical. Nothing is more improved by forcing, the Beans if young enough eat so crisp.

Of kinds I prefer the Newington Wonder, chiefly when to be cooked whole. Of all others I prefer in-doors and out of doors, the China Dwarf, called also Robin's Egg. The Fidler's Forcing, the Sion House Forcing, and the Cream-coloured Dwarf, are also very good. I have also grown heavy crops of the White Dutch Runner in pots, by nipping in the shoots. They thus became little balls of pods and flowers.

BASIL

when wanted green in winter should be sown in September, and kept in a hothouse all the winter. When a good quantity is wanted green and for drying in summer, sow in a hotbed in April, prick out the seedlings, and plant out in a warm border at the end of May. If the season is cold place a spare sash over the plants for a few weeks.

CAPSICUMS

in the shape of Chillies, and other kinds of various shapes, sizes, and colours, are much liked by some families, both when ripe and green. The great proportion do best treated as tender annuals. Sow in light, sandy soil, and leaf mould, about the middle of March, and place in a hotbed. When 2 inches high prick out half a dozen round the sides of a four-inch pot. In a fortnight, or three weeks, give each of these a similar-sized pot, and repeat as necessary until each plant has a six-inch or eight-inch pot; and for ripe fruit keep these pots under glass in any forcing-house until the autumn; and for green fruit, instead of giving such large pots, turn out the plants in front of a wall or hothouse in the middle of June. Green fly is apt to attack them. The smoke of a few of the Capsicum pods burned or a puff of tobacco will settle the insects.

CARROTS.

The best for forcing are the small, short French and the Early Horn, and a little of the Early Horn Scarlet. Young Carrots may be obtained through most of the winter by sowing these sorts in beds in August, and giving protection when needed; but even at the best they are much harder and woodier than nice young plants raised in a moderate hotbed. I have found little is gained by making the bed before Christmas. Even then a bed for a frame should be from 2½ feet to 3 feet in height, if one part dung and two parts leaves; soil 6 inches deep, and light and sandy, rather flat, and within 6 inches of the glass. Make the surface smooth. Sow Carrot seeds rather thickly, either in rows 3 inches apart or broadcast, and a sprinkling of Radishes to draw early; beat slightly down, and cover with a sprinkling of dry sandy soil. The heat should be from 50° to 55° after the Carrots are up. Unless very thick, I thin but little; for as soon as the Carrots are a quarter of an inch in diameter they will do for soups, and the larger may be left to grow big enough for dishes. A great number may thus be drawn out of a two-light box. Of course, if you wish each Carrot left to be a fair size before any are used, then you must thin out so as to leave them 3 inches or so apart; but that I consider great waste. Air should be given early at all favourable times, but when quick returns are wanted, too much should not be given, nor left too long on. If the bed is allowed to get cold the Carrots will be little more crisp than if grown in the open air. If Radishes are thus sown on the bed they must not remain too long, or they will starve and shade the Carrots. Whilst young, any watering should be done with water not below 60° to 70°.

CELERY.

This may be considered forced when small, fresh, white heads are wanted for soups in June, and good heads for the table in July and August. For the first the seed should be sown in a hotbed by the 1st of January, the plants be pricked off and by the middle of April be planted out on a mild hotbed 6 inches apart; be encouraged to grow quick by shutting in sun heat, and giving a little shade in bright sun, and earthing up with dry leaf mould as they grow. The same plan may be pursued for the first crop at the end of July, only the plants should be moved to the trenches in the middle of May, and a little shade given on very bright days, and a little protection on cold nights. If properly attended to in watering there is no danger of this early Celery bolting, or throwing up the flower-stalk, if the earthing up does not take place more than a month before the heads are wanted. The Dwarf White is the best for this

purpose. For main crops March and April are soon enough to sow.

CHICORY.

Young leaves of this are sometimes obtained in winter by sowing thickly in pots in a hothouse, and cutting the plants over as we do Mustard and Cress. A nice blanched salad is obtained from roots either stored or taken up as wanted in winter, the produce of seeds sown in rows 15 inches apart in May. These packed with their heads uppermost in earth in pots or boxes will furnish a good produce in any dark place where the heat ranges from 40° to 50°. When much above the latter, the leaves get thin and flaccid. When no dark place is accessible, fill a pot or box, and put another of the same size over it, clapping some moss or clay putty between the pots, and stopping up the hole to exclude light. Dandelions make a good substitute. I have been glad to dig them up in severe winters.

R. FISH.

(To be continued.)

REPORT ON THE GARDEN PEAS,

GROWN AT CHISWICK DURING 1860.

By ROBERT HOGG, LL.D., F.R.H.S., *Secretary to the Fruit Committee.*

(Continued from page 29.)

28. **Matchless Marrow** NOBLE, COOPER, & BOLTON.

SYN. *Milford Marrow* LAWSON & SON.

Stradsett Marrow FLANAGAN & SON.

Plant 5 feet to 6 feet high, of strong and robust habit of growth. The stem is always simple, and bears from twelve to sixteen pods. The pods are generally in pairs, rarely single, and contain from six to seven very large Peas. The ripe seed is large, uneven, variously and irregularly shaped, and of a white and olive colour mixed.

Sown February 19th; bloomed June 13th; slatted June 23th; ready for use July 15th.

This is a great bearer, and produces large, plump, well-filled pods, which come into use four or five days after the Early Green Marrow, and ten days after Prizetaker; but it is a tender variety, and during the past season did not fill well, nor were the pods freely developed.

29. **Garbutt's Amazon** FLANAGAN & SON.

SYN. *Denger's Early Prolific Green Marrow* NUTTING & SONS.

Plant a strong robust grower 5 feet to 6 feet high, having a simple stem, which produces not more than six pods. The pods are either single or in pairs, and contain six large Peas in each. Ripe seed white and olive mixed, large, uneven, variously and irregularly shaped.

Sown February 19th; bloomed June 19th; slatted June 29th; fit for use July 20th.

This is very much in the way of Matchless Marrow, but comes into use five or six days later. It is also much less productive, and the pods, which are few, fill indifferently, so that it is not a desirable variety. Is it not the old Tall Green Marrow?

30. **Sutton's Berkshire Hero** SUTTON & SONS.

This is a much taller and stronger grower than the preceding, and five or six days later in all its stages. The plant is 7 feet high, and produces eight or ten large pods, which contain from six to seven very large Peas. The ripe seed is larger than that of the preceding and of Matchless Marrow, uneven, variously and irregularly shaped, and of white and olive colour mixed.

Sown February 19th; bloomed June 25th; slatted July 3rd; and ready for use July 25th.

IV. PRUSSIAN PEAS.

Ripe seed small, almost round, smooth; skin thin, blue. Foliage dark green, blotched.

31. **Groom's Superb** LAWSON & SON.

SYN. *Blue Spanish Dwarf*; *Blue Fan*.

The plant grows from 18 inches to 2 feet high, and has a simple stem, bearing from eight to ten pods. The pods are single or in pairs, in about equal proportion, and contain six to seven Peas in each. The ripe seed is small, round, and pale blue.

Sown February 19th; bloomed June 16th; slatted June 25; fit for use July 14th.

This is now almost entirely out of cultivation, being surpassed

by several other varieties of superior merit. It is really not worth perpetuating.

32. Woodford Marrow NOBLE, COOPER, & BOLTON.

Plant of a strong and robust habit of growth, having very dark bluish-green blotched foliage, and a stem $3\frac{1}{2}$ feet high, which is sometimes simple, but generally branched at about half its height from the ground. The pods number about eleven on a plant, and are produced singly or in pairs; when ready to gather they are rather flattened, but as they become ripe they assume a roundish shape. They contain on an average eight Peas in each, and these are of a very dark olive green colour, rather thick in the skin, and very closely packed, so much so as to be quite flattened where they come in contact. The ripe seed is very dark blue.

Sown February 19th; bloomed June 14th; slatted June 26th; and fit for use July 14th.

On account of its fine dark green pod this is an excellent Pea to grow for market; but it is one that requires to be very carefully selected when grown for seed, as it has a great tendency to degenerate back to the Blue Prussian, from which it has evidently been raised.

33. Batt's Wonder..... BATT, RUTLEY, & SILVERLOCK.

The plant is of a strong and sturdy habit, with a thick stem $2\frac{1}{2}$ feet high, generally simple, but sometimes branching, and having large dark green foliage. The pods are produced in pairs, on an average of from twelve to eighteen on each plant; they are curved like those of the Scimitar, and contain from nine to eleven good-sized Peas. The ripe seed is small, dark bluish-green, of the colour of that of the Woodford Marrow.

Sown February 19th; bloomed June 16th; slatted June 28th; and ready for use July 16th.

In the trial of 1859 this was found to withstand the dry weather better than any other variety; but in 1860 it suffered from the coldness of the season, and the pods filled irregularly. It is a very excellent and productive kind, as much so as the Scimitar, and the pods and Peas are of the same dark dull bluish-green colour as those of the Woodford Marrow.

34. Blue Prussian NOBLE, COOPER, & BOLTON.

Plant not robust or strong in its habit, having a stem 3 feet high, which is sometimes branching, and with dark green blotched foliage. The pods are generally in pairs, from twelve to sixteen on each plant, and contain about seven closely packed Peas. The ripe seed is blue, small, and almost smooth.

Sown February 19th; bloomed June 16th; slatted June 28th; and ready for use July 16th.

This is a very old and popular variety, much used for extensive culture in fields and market gardens on account of its great fertility—a character which it maintains superior to any of the other blue Peas, most, and indeed all, of which during the past season have exhibited much less hardy constitutions.

V. IMPERIAL PEAS.

Ripe seed large and irregular in shape; skin thick, blue. Foliage large, dark green, and blotched.

35. Fairbeard's Surprise..... NOBLE, COOPER, & BOLTON.

The plant is a free but not robust grower, and always with a simple stem, which is about 5 feet high. The foliage is bright and not dark green, like the other varieties of this class. The pods are generally single, but sometimes in pairs, and are from eight to ten on a plant; they contain from seven to eight good-sized Peas. The ripe seed is somewhat oval, of a pale blue colour.

Sown February 19th; bloomed June 7th; slatted June 20th; and fit for use July 9th.

This and Fairbeard's Champion of England were originally taken from the same pod, the former having a round and the latter a wrinkled seed. It is the earliest of all the round blue Peas, and very superior in every respect to the following, which comes into use two or three days later.

36. Harrison's Glory..... NOBLE, COOPER, & BOLTON.

The only distinction between this and Harrison's Perfection is the blue-coloured seed, that of the latter being white: they differ in no other respect, being of the same height, equally productive of pods, which always fill very badly, and both come into use at the same time.

(To be continued.)

POMOLOGICAL CLEANINGS.

GRAFTING WAX.—Take 27 ozs. of common yellow rosin, melt it gradually so as not to drive off the turpentine. When reduced to the consistence of a syrup, add 10 ozs. of alcohol, shake them thoroughly together, and pour the mixture at once into a well-stopped bottle. When the graft is inserted and tied in its place with a strand of matting in the usual way, cover the surface of the whole with this varnish with a small painter's brush. Such varnish may be used in any weather, and is neither affected by heat, cold, nor wet.

FIRST PLANT YOUR ORCHARD.—He who puts off planting an orchard till a more convenient season than the first "planting season," is like him who waited on the bank of a river for all the waters to pass off, reasoning that a stream running so rapidly must soon run dry. So some people imagine that next year they will have more time to set an orchard, not counting that another year usually brings along with it an increasing amount of cares. Many a man has grown grey with just such resolves as "I will plant another year;" and to-day is farther than ever from doing it. Plant trees first, and cultivate them, and in a few years your orchard is soon producing abundant crops, while your dilatory neighbours are "just going to plant." You can build a house in a year, but not a full-grown orchard. The best interests of many a one are often delayed, hoping to have a more "convenient season." I know of many such cases. I wish I knew of less. Under the present system, the west is supplied from abroad at a great expense, when we ought to supply ourselves and others with all needed fruit. One hundred apple trees of good fruit, under good cultivation will be worth one thousand dollars when they are ten years old.—(D. C. S. in *The Prairie Farmer*.)

STRAWBERRY FROGMORE LATE PINE.—Fruit very large, conical and cockscomb-shaped; broad and flattened at the stalk, where it is glossy like the old Pine. The seeds are numerous, not deeply imbedded. Skin glossy, bright red, becoming dark red, and almost black when very ripe. Flesh tender and very juicy, red throughout, richly flavoured, and with a good deal of the Pine aroma when well ripened. This is a late variety and a most abundant bearer. The fruit is produced in very large clusters, and comes on in succession, generally one-half of them being unripe. The scapes are very strong, stout, and branched twice and thrice compound. This very late and valuable variety was raised by Mr. Ingram, of Frogmore.

STRAWBERRY CULVERWELL'S SANSPAREIL.—Fruit medium-sized, long, conical, uneven, and furrowed in its outline. Seeds not deeply imbedded. Skin a very dark red, becoming almost black when it ripens. Flesh very firm and solid, red throughout, and very richly flavoured. This is a capital bearer, and an excellent late variety.

CULTIVATION OF TRUFFLES.

In answer to your "OLD SUBSCRIBER'S" question respecting "Truffles" in your Number of the 16th inst., I beg to state that thirty-five years ago, when at school at Ramsbury, in Wiltshire, I several times accompanied a "Truffle hunter" in his search. My object was rather to observe the instinct of his dog than the nature and habits of the fungus; but some accidental knowledge was obtained. The Truffle was found at the roots of the trees in huge Fir plantations, the property of Sir Francis Burdett, covering the sides of the hills which flank the vale of the Kennet in that part. The fungus was generally found from 6 inches to 12 inches under the surface, sometimes deeper. The substratum of these hills is chalk, the staple loam, and shallow in general; but in the plantations of many years' growth an artificial staple had formed of a light covering mould from the deciduous leaves to a depth considerably greater than that of the soil on the unplanted sides of the hills. In this the fungus was found, generally, I think, on the outskirts of the plantations. A knot of them was usually found together, and the "Truffle hunter" left a root or two for further propagation. There can be no doubt that it would increase by transplantation to a suitable soil, but I never tried it.

Loudon in his "Encyclopædia of Gardening," third edition, 1825, makes the following extract from the "Edinburgh Encyclopædia," No. 4348—"Culture" of the Truffle. "No attempt," Neill observes, "it is believed has hitherto been made to cultivate Truffles; but of the practicability of the

thing there seems no reason to doubt. In their habits of growth, indeed, they differ essentially from the Mushroom, but it is certainly possible to accommodate the soil and other circumstances to the peculiar nature of the fungus. It has been said that the tubercles on the surface of Truffles are analogous to the eyes or buds of potatoes, and that they have been propagated like potatoes by means of cuts furnished with tubercles. It may, however, be suspected that the pieces thus planted contained

ripe seeds. Truffles, we may add, seem to delight in a mixture of clay and sand; and a moderate degree of bottom heat, such as is afforded by a spent hotbed, might probably forward their vegetation."

Perhaps some others of your readers may give information as to the habits of Truffles in parts of France and in the German forests, where they are found, I believe, in large quantities.—HERBERT RANDOLPH, *Tilbury House, Bruton.*

REDLEAF AND ITS GARDENING.—No. 3.

(Concluded from page 27.)



Fig. 5.—REDLEAF—The Fernery.

In continuing the remarks on Redleaf, we now come to a portion of the grounds which until very recently was but little regarded as a portion of a well-arranged garden—i.e., "the Fernery." Our present engraving, No. 5, only gives an imperfect idea of it, though correct enough at the point taken; but Ferns, taken collectively, present less to make a picture than do most plants, though individually, perhaps, they are second to none for their beauty and graceful appearance. Suffice it, however, to say that this fernery consists of a sloping bank, with large stones jutting out covered with moss, and amongst them is an excellent collection of hardy Ferns. The bank which composes this fernery forms also a boundary between this and another portion of the grounds. A covered walk curves past this fernery—the covering tending to shade some of the plants

nearest the base of the bank. A botanist, or one well versed in British plants, would here find materials for an hour's close and ardent inspection, as all the kinds seem in excellent health.

Engraving No. 6 is a view of the grounds in continuation of the Rock Garden to the south; the dressed ground running to a considerable distance in that direction, and eventually opening into the park, which is also bounded by a piece of water or lake. This vista is open from the mansion, and all tall-growing trees have been kept away from this line; but flanking it on both sides are some fine specimens of Conifers, both in the dressed grounds, and also planted singly in the park with suitable fences around each. Amongst others in that way I noticed *Picea cephalonica*, a fine tree; *P. Douglasii*, nearly 60 feet high, but, being in a very exposed place, was browned a little by the

frost or wind; *Pinus montezeuma*, a fine silvery grey species; *Abies Brunoniana* was, however, too tender to endure a winter like the past; several specimens of *Picea Webbiana*, and some seedlings from the larger trees of it, seemed to be hardier than the parent; *Pinus ponderosa*, in the character of a timber tree; and in a sheltered portion of the grounds was *Cupressus majestica*, a fine tree; *Juniperus sinensis* pretty, and some *Cedrus deodara*, 36 feet high, others 48 feet, but nothing shows a greater diversity in habit than this tree. A fine *Wellingtonia* planted in the park, 12 feet high was associated with a singular adventure that befel it when it was first planted out. A little boy (who, no

doubt, in after life may have an eye for the beautiful), took, a fancy to this tree as a pretty plant for a pot, pulled it up, took it home, and had it a week or two in a garret window, until Mr. Cox, hearing of it, recovered and replanted it, but, of course, not without the loss of what he considers a season's growth—some two or three feet. Nevertheless, it is now a fine, promising plant.

Independent of the features above given, there is a Dutch Garden on the strictly formal style, so characteristic of that school. Shut in on most sides by high boundary shrubs, it has a billiard-room on one side, and on another side, not joining but

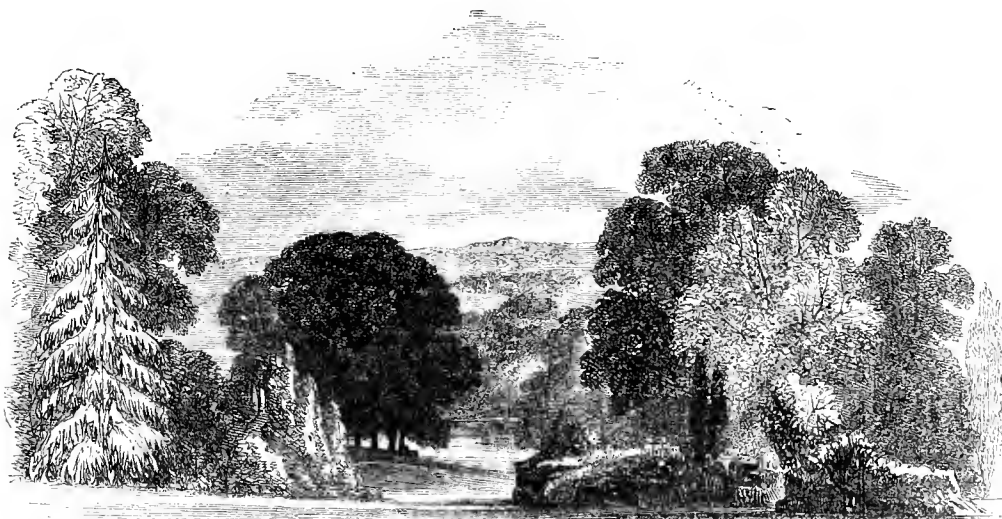


Fig. 6.—REDLEAF—View from the Rock Garden down the Lawn.

at right angles to it, a conservatory. The latter, however, scarcely deserves that name as it is now applied, for its front has more the appearance of a cottage with a thatched roof, the side front only being glass glazed in lead-casement fashion. Fine flowering plants are not kept here, but it was well filled with plants of good foliage. Amongst which were two fine plants of *Araucaria excelsa*, *Rhododendron Falconerii*, with a large foliage; *Cupressus californica*, *C. Goveniana*, with its clouds of pollen; *Desfontainia spinosa*, a fine plant, which flowers beautifully at the proper time; *Illicium floridum*, and other things, all seemed in good health, notwithstanding the dark roof they were living under. The garden in front of this house was composed of square, or rather diamond-shaped beds divided by walks of brick with edgings of the same. These beds were in most cases planted with early spring flowers, to be followed by bedding plants. Several edgings were of Dog's-tooth Violets; some had Tulips, others Crocuses, and a *Silene compacta* seemed also a favourite. The outer border of this garden has herbaceous plants, of which there was a fine collection, while choice *Rhododendrons* and other things formed the background; and not the least interesting object was a fine *Camellia pæoniiflora*, 10 feet high, and another of the old double-striped, both of which had been out of doors for something like an ordinary lifetime. After a fine summer they bloom beautifully, but this season buds were scarce. *Araucaria Cunninghamii* was not so much at home, but many of the Indian and Sikkim *Rhododendrons* were in robust health, and some Indian Azaleas were also equally good. Some high trees might, however, be of some service to them as shade on the south, as well as on other sides.

The irregularities of the ground are rather inconvenient to the kitchen garden, which inclines rather steeply to the south-west; it however appears to be very productive. A range of pits heated by a caupon boiler was hard at work, and, of course, full of things wanted now and hereafter. This compartment, how-

ever, was shut off from the kitchen garden, as also was another enclosure which contained two plant-houses well filled with everything that is gay and useful at the present season. These houses are about 100 feet long and rather lofty, with a short north light; the back wall being covered its whole length with what I considered the most remarkable object in the place, being entirely covered from bottom to top, and also the greater part of the north light, with *Camellias* in robust health, and in the early part of March in full bloom. This splendid wall contained hundreds of well-expanded blooms all out at one time, with thousands more to come; and so healthy and growing were the plants, that Mr. Cox says he has at times been obliged to cut wood out of them enough to make faggots. Certainly nothing could look better than most of them did; even *C. reticulata* was flowering as freely and in as good health as the other kinds are often seen elsewhere. A fine striped kind, called in compliment to the former spirited occupier of this place *Wellsiana*, was a mass of bloom. Others kinds were scarcely less so, and the whole looked handsome. A narrow border at their base was planted with Ferns, the remainder of the house being occupied with a stage and flowering plants; amongst which were several *Rhododendrons* of the Sikkim breed, *R. ciliatum* being about as free a bloomer as any. *Cinerarias*, Azaleas, bulbs, *Cythsuses*, and the other plants usual at this season, were also in abundance, and some plants of the *Solanum capsicastrum* were showy with yellow berries; but the *Camellias* were the great attraction, and a wall 14 feet high and 100 feet long covered with this lovely flower is an object we do not meet with every day, and of itself deserves going a long way to see. I confess I was as much struck with it as with any of the other features of this fine place, all parts of which seemed in excellent order, and reflected great credit on Mr. Cox, whose courtesy in pointing out particular objects, and general kindness in affording every information, it is only right here to acknowledge; and

I have no doubt but with spirited owners like its previous and present one, and the assiduous care of a culturist like Mr. Cox, Redleaf will continue to occupy that prominent position in gardening matters which it did in the early Numbers of Loudon's "Gardener's Magazine;" and to the lover of artificial scenery, carefully worked into the form that Nature often puts upon it, Redleaf will always be an attractive place.—J. ROBSON.

WORK FOR THE WEEK.

KITCHEN GARDEN.

KEEP the hoe at work amongst all early crops. *Asparagus*, plant the young plants in beds that have been deeply trenched and well manured. The roots to be lifted carefully with a strong fork, and, after planting, a good supply of water to be given to settle the soil about them. *Beet*, sow a full crop, if not already done. *Cauliflowers*, raise the hand-glasses, and loosen the soil between the plants; after which give them a good soaking with manure water. *Celeriac*, continue to prick out young plants. To be always kept well supplied with water, rapid and continual growth being a most essential point in its cultivation if it be required large. *Cucumbers*, the young plants intended for the ridges to be stopped, and repotted if they require it. Sprinkle the plants in the frame early in the afternoon, and close them; water more liberally round the sides of the frame where the heat of the day dries the soil. *Dwarf Kidney Beans*, sow on a warm border. *Gherkins*, sow. *Herbs*, transplant Camomile, Mint for distilling, and other herbs where a large supply is wanted. *Lettuce*, repeat the sowings of all sorts. Thin out and transplant those advancing as occasion may require. *Potatoes*, hoe between the early crops as soon as they are above ground. Where circumstances have hitherto prevented the getting in of the main crop it should be done at the earliest opportunity. *Scarlet Runners*, sow in a warm situation. *Sea-kale*, keep the crowns well soiled over for late cutting. *Turnips*, sow a good breadth.

FLOWER GARDEN.

If evergreen shoots must be planted take care to preserve every fibre. To be taken up with large balls of earth, and the holes to be dug larger than the balls will fit into: a good soaking of water to be given, and to be firmly staked, to prevent the injurious effects of wind waving. Finish, if not already done, the pruning of those summer Roses that were left unpruned for the purpose of retarding their bloom. If green fly appears it can be effectually removed by syringing them with weak tobacco-water, and the Rose caterpillar by picking them off with the hand. Make a sowing of perennial flower-seeds in the reserve garden.

FRUIT GARDEN.

Look to blossom protection on the walls. On the first appearance of green fly on the Peach and Nectarine trees syringe them with tobacco-water two or three evenings successively; if done properly it will stop their destructive progress for the season. The mining grub, so destructive to the Apricot and Plum, may be detected: when the leaves are folded up they are easily crushed between the finger and thumb. If strong plants of the Elton Strawberry are lifted now, and planted behind a north wall, they will produce a crop in August and September, and will keep up a succession along with the Alpines to the latest period. Where Vines have shot sufficiently to distinguish the fruit-bearing shoots let all superfluous ones be immediately removed. Examine grafts frequently, removing on every occasion the wild shoots.

STOVE.

The plants here are now in vigorous growth, and, therefore, they must be assisted by a lively bottom heat, a brisk-growing temperature, with plenty of moisture and air, and weak manure water to such plants as require it. The *Ixoras* now expanding their bloom-buds to be set close to the glass where they can have plenty of air to colour the blooms properly. Start a fresh lot of *Gesneras*, *Gloxinias*, and *Achimenes*.

GREENHOUSE AND CONSERVATORY.

Look well to the plants in the borders of the conservatory, and if dry, give them a good soaking of weak liquid manure that will percolate through the whole mass of soil. The plants in these structures to be carefully examined in the forenoon of bright days to see that none of them are suffering for want of water; for with bright sunshine, accompanied with drying

winds, they are very apt to flag for want of water, more especially any specimens that may be rather potbound. Ventilation to be so given as to avoid, while parching winds prevail, allowing currents to blow through the houses. Forward *Calceolarias* and *Cinerarias*, and keep them clear of insects. Water *Camellias* freely with weak liquid manure, but do not let the water hang about their roots. Keep the shifted ones close and warm. *Heaths* and New Holland plants to have an abundance of air, and to be watered very carefully. Shift *Pelargoniums* wanted to flower in autumn, and propagate desirable sorts. Keep all climbers, whether in pots or otherwise, regularly trained.

PITS AND FRAMES.

Continue to pot off rooted cuttings as soon as they are in a fit state for the purpose. The most forward portion of the stock to be removed to a cold pit. See that they do not suffer for want of shading and water during bright sunshine. Attend to the stopping of the shoots to induce a robust bushy growth. Shut up early in the afternoon, having previously on sunny afternoons given the plants and the walls of the pit a good syringing with soft water. Cover up close at night, and uncover early in the morning, giving plenty of air during fine days.

W. KEANE.

DOINGS OF THE LAST WEEK.

DIGGED, turned, and pulverised garden ground, flower-beds, and borders, being glad to turn down the surface dry and warm, and bring up the cold and wet to the influence of sun and air. Sowed more garden Beans, Peas, Carrots, and a little Beet for early supply, preferring to sow again in a fortnight or three weeks, so that little may be tempted to run to seed, which it is apt to do when sown early as often recommended; a run root being hard and stringy instead of crisp, juicy, and sweet. Pricked off Tomatoes and Capsicums; planted last of Potatoes. Watered with warm water some fresh-planted young fruit trees, and transplanted old ones, and threw a little water with the syringe over their heads in warm, sunny days. Hoed the ground slightly among Strawberries; removed the rough of any litter between the rows; lifted some young plants that had been planted 4 inches or 5 inches apart on a border in September, and potted them to get assistance under glass for a last in-door crop, and plunged the pots in a bed of leaves just slightly warm; but with no covering of any kind. This will secure the pots being crammed with roots before they are placed in a cool house. Removed plants gathered from, and planted at once in a border, in rows 2 feet apart and 15 inches from plant to plant. Placed more pots of British Queen and Prince of Wales in the houses, and fresh arranged, tied up the fruit, and thinned the clusters of those there, to be forwarded or retarded as occasion demands. I have no glass frame at liberty, but at this season would have made a slight hotbed of leaves, and from the middle to the end of the month would have filled it with young plants taken off the border as above referred to, placing them firmly in stiffish garden soil, about 9 inches or 12 inches apart. Such a plan does very well at this season, but it would entail disappointment if tried in the early spring months. For early forcing the pots should be filled with roots in September, and receive all the sun possible afterwards. In sunny seasons we have also had Strawberries three weeks earlier than in the open air, by placing a frame over them, and covering the ground between the plants with tiles and slates, and shutting up pretty early in the afternoon. To prevent red spider the back of the frame or even a portion of the slates may be daubed with sulphur and water paint. Top-dressed Cucumber-roots in pit with a little very rotten, well-aired leaf mould; the plants producing plentifully and now overtaking and passing these in the dung-bed frame, but from which we, nevertheless, obtained our earliest fruit. Pegged out and tied up Melon plants. Thinned Grapes, keeping the scissors clean, and regulated and tied in shoots of Peach-house. Trees on open wall, protected with old sashes last winter, seem all right, have hardly a Peach bloom elsewhere, and trees gone very much. Have placed an orchard-house almost finished over the trees in bloom, and filled the front with maiden and older trees of Peaches, Nectarines, Apricots, Plums, Cherries, Gooseberries, and Currants in pots, and expect a great amount of pleasure as well as fruit in another year. The state of the trees on the wall that had merely the protection of old sashes, contrasted with the wrecks and ruins elsewhere, assures me plainly what glass alone fairly managed can accomplish. Even

a little heat in extreme cases need not be such a great affair as some make it. The hot-water tradesmen, with all their good qualities, have done much to frighten amateurs with their huge boilers, huge expense, and a lot of pretended secrets about the work, which intelligent men do not like.

In the conservatory, took a number of Azaleas finished blooming into a glass-fronted verandah, where they could be kept close, shaded when necessary, and sprinkled overhead to encourage fresh growth. Filled up the empty space with bedding plants in boxes needing a little help. Moved Camellias done flowering to the vinery to give them a help to make their young wood. Moved Pelargoniums and Cinerarias to supply their place, arranging the house afresh, placing flowering plants chiefly on the north side, and all growing plants to the south, and the Pelargoniums, &c., being moved from the late vinery. The Fuchsias from the other early houses were placed there, and after standing a few days the larger were shifted into 12-inch and 14-inch pots, and the younger ones will get a little more pot room as time will allow. The Vines in the late-house must be tied up ere long, as, though the shoots are kept at the front of the house, and all possible air given there, and the Vines never syringed, the buds are now breaking and from 1 inch to 2 inches in length. The earth-pits are now the safety-valve for getting room. Lobelias, Verbenas, and Ageratums finding their way there—some planted in lumps of spring-struck cuttings; some singly according to kinds and room, but all thick so that they will not hurt each other before planting time. The Calceolarias, &c., under the calico are looking even better than a few under glass. Most of our stock of Verbenas were planted out in the slight hotbed spoken of the other week, and are looking nicely, and will, no doubt, lift nicely. Sowed also such annuals broadcast, under protection for a time, as Love-lies-bleeding, Prince's Feather, Chrysanthemum tricolor, Convolvulus minor. Such a plan enables us to plant when the ground is warm and well-aired, and the plants, if moved in little patches, hardly ever feel the moving; and last year such things as Prince's Feather, when sown at once in the borders, hardly ever got above a few inches in height, even when it did grow instead of making a massive row from 3 feet to 4 feet in height.

—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

FLOWER-GARDEN PLANS (Notice, Dublin).—Every week we have to repeat that we never plant plans for any one; we only criticise the planting proposed by our correspondents. No planting will make your series of parallelogram-beds look well. The advertisements may all be cut away from our Numbers. The binder knows how to manage it. (B. S. A.).—The first part of our reply to the preceding applies to you. We cannot plant for you. The weeds and earth of your garden thrown into your cesspool will absorb the liquid, and if you add a little sulphate of lime (gypsum or plaster of Paris), that will fix the ammonia. Burnt clay, of course, would be better than common earth, but burnt clay, you say, you cannot procure.

PEAR LEAVES PARTIALLY DECAYED (D. B. E.).—Either the buds were injured by the winter's severe frost, or the roots are rather defective from some cause. If the first be the origin of the evil, it will extend no further. If it extends further—that is, if more leaves become decayed—lift the tree carefully out of the pot, remove some of the old soil from about the roots without disturbing them, add a little fresh soil, give good drainage, and repot. We have not lost sight of the price list, but there are difficulties in the way of obtaining reliable information.

PEACH BLOSSOM FALLING IN ORCHARD-HOUSE (J. B. G.).—We think it very probable that the exposure of the pots to the intense frost, which you say they had to endure unsheltered, may have so injured the roots as to deprive the tree of the means of supplying the sap required for the blossoms. The frost may even have injured the blossom-buds. If the red spider has robbed the trees of the sap they should have stored up for next year's development, the blossoms always fall unproductive.

OUR ILLUSTRATIONS (W. I.).—We are quite aware that these would look even better than they do if we could afford to print on better paper, and we shall do so if the paper makers allow us to benefit by the reduction of the paper duty. It is quite true that to use a better paper would cost about 7s. 6d. per 500 copies; but if twenty times that number are required weekly, and as there are fifty-two weeks in the year, that would amount to rather more than you suggest.

BOTANY (J. Forster).—Polyandria is the ninth order in the class Monœcia. There are only ten orders in it altogether.

FUMIGATING PEACH TREES (Rev. C. D.).—They may be fumigated with tobacco smoke without injury though in bloom. You had better write to Messrs. Baker, Phœnicians, Beaufort Street, King's Road, Chelsea, for information about the Bretonne crows. They import them.

VARIOGATED PLANTS (Jerry).—All that you enumerate are very good, and most of them superior to those we recommended; but in our answers to correspondents there are considerations founded on statements in their letters which prevent those who do not see their statements being entitled to form a judgment upon our answers.

CINERARIA MARITIMA CUTTINGS AND SEEDLINGS, &c. (W. W.).—In answer to repeated inquiries, Mr. Fish, at page 362, Vol. XXX., of *THE COTTAGE GARDENER*, gave in his opinion the best mode of propagating the above from cuttings, and if a better mode can be found for that purpose he will be glad to hear of it. It is no part of his duty to inquire who possesses a stock of this or of anything else, but merely to do his best to meet their wants as these wants are made known. He prefers plants so raised for edgings or lines, but he has no objection to make against seedlings. If these can be had 2 inches or 3 inches high before the middle of May, and the points are picked out with the point of a sharp penknife, they will make nice edging plants. Few plants are easier managed, and few grow more vigorously out of doors after the middle or end of June. After this season, therefore, our correspondent may please himself whether he keeps a stock from cuttings or from seeds. Unless in a rough piece of ground, we consider that the flower-stalks, and flowers too, add little beauty to the plant. For edgings or rows we consider them altogether out of place, and, therefore, we nip off all that appear; but we will find no fault if our correspondent prefers the flower-stems even to the foliage. We see no reason why the *Petunia Comtesse d'Ellesmere* should not succeed in any garden in Yorkshire. If raised from seed, it is just possible that there may be many shades of colour. Some varieties of *Petunia* come very true, and others do not. Other things being equal, seedlings are more hardy and continuous in growing and flowering than plants raised from cuttings. We have had many a good bunch of Grapes under circumstances similar to yours. Instead of a crop next season, less than half a crop would be advisable, if the lengthened well-doing of the Vines is to be considered.

LIME WATER FOR STRAWBERRY PLANTS (E. J. E.).—This application for the destruction of slugs, &c., which lodge about the plants should be clear. Like all other lime water for gardening purposes, it is made by putting a peck of lime freshly slaked into forty gallons of water, stirring it well, and letting it remain until quite clear, which will be in about half an hour. Use the clear liquor. Ten gallons will be enough for watering your single row 60 yards long.

VARIOUS (Flora).—We do not know a white *Heliotrope*. The strong-growing *Triomphe de Liege*, has a large light lilac flower, but it cannot be called white. The hardier *Honeysuckles*, *Clematises*, and climbing *Roses*, will do admirably in your iron verandah facing south-west. The *Lemon* and *Citron* will grow slowly on the back wall of a conservatory, but neither will bloom or fruit unless they get a good portion of sun; and this they could not have if your *Camellias* shade the wall.

FLOWER-GARDEN PLAN (Q. E. D.).—A basket-bed in the centre of your pretty flower garden, in front of your house, would be most objectionable; but a dial on a highly finished pedestal set on a deep bold plinth would be in harmony with that style of flower garden. Then your *Verbenas* in Q, R, S, T. You are quite right about M, N, O, P, but no edgings there. H and I are for edgings, and a row in the centre of each of *Perilla* to where they measure 6 feet across; then two rows of *Perilla* 18 inches apart up to the end of each; and any other plants will agree with *Perilla* if you have a good variegated edging. C, C, and C F, must be bright scarlet; G, D, and E, bright yellow; K and L light colours, as *lilac Nierembergia* or a clear white; A, A, and B, ought to have broad white edgings; the rest as you say. W must be your ribbon-border with three rows only. *Cerastium* next the walk, blue *Lobelia speciosa* next row, and your best variegated *Geranium* at the back; but if you are short of them, any plain-leaved dwarf scarlet kind will do for a shift. Dwarf *Dahlias* might occupy 10 feet of the broadest ends of H and I, and do better than so much *Perilla*, and with a row of *Scarlet Geraniums* round the *Dahlias*, with an edging in front. It is a pretty plan altogether, and should not have *Stocks* and *Asters* till they are nearly coming into bloom. All your beds beyond M, N, O, P, might have permanent edgings of hardy plants, the width to be according to the size of the beds; and all such in all places ought to be taken up yearly in April and reset—that looks well, and is a great economy of pot plants and adds to their effect. But let us hear at the end of the season how it all looks, and what people said about it, and what changes you or your friends propose for another year: we like such gossip.

VINES NOT FRUITFUL (T. T. T.).—By merely stating that your *Black Hamburg* bears well, whilst the *Sweetwater* and the *Muscadine* on either side of it do not bear well, you give us too few data to enable us to form an opinion as to the cause. Are the Vines weak? Then a dressing of superphosphate of lime and rich manure waterings might effect a remedy. Are the Vines making very strong rampant wood? Then, perhaps, the roots are too deep; and all the sun and air and extra heat must be given in the autumn to ripen and harden the wood. Could you manage to let a good gardener see them?

EVERGREEN FOR BACK WALL OF GREENHOUSE (A Manchester Subscriber).—We should decidedly prefer the *Magnolia fuscata* to an *Arbutus*. A box 18 inches square and as much deep would grow a good-sized plant. We have seen the *Acacia armata* covering such a wall with fine effect. It is always green, and in spring its flowers clothe it with a dazzling gold colour, but it is liable to red spider if not well supplied with atmospheric moisture.

BRITISH WILD FLOWERS (G. W. Ray, and others).—The work will be completed with the least possible delay; but as many of the rarer species are difficult to obtain, we cannot at present give a decided answer. Every drawing will be from living specimens.

HEATED GLASS CASE (B. R., Liverpool).—Yours is not a Waltonian Case, and the gentleman at New York whose interesting letter you had read lately in these pages, will now be able to tell the tin men of New York, that those of Liverpool are just as ignorant of its construction as they are. He, the said gentleman, spent £15 trying to get up a Waltonian Case in New York from the very same drawings in Mr. Shirley Hibberd's book, and failed as you have done. I st of all, and last May, he ordered a Waltonian without the case from Mr. West, and all the advice we can give you, is to go and do likewise.—D. B.

YELLOW POLYANTHUSES.—Mr. Beaton requests us acknowledge the safe arrival of these.

SHELTERS (*An Old Wellwisher*).—Haythorn's small-meshed hexagonal netting, and Shuw's tiffany, are the most effective shelters we have tried for protecting the blossom of wall fruit.

STAG BEETLE (*E. F. Lee*).—It is called by entomologists *Lucanus cervus*. During the day they live in hollow trees or other decayed wood, taking flight at dusk. The females are sluggish, and not so numerous as the males, who fight for their possession. The larva is found in the trunks of decayed willows and oaks, and remains untransformed for several years—Rosel says six years. It is believed to be the *Cossus*, eaten as a delicacy by the Romans. When the larva is full grown, it forms a cocoon of the wood-dust which it has gnawed down with its powerful mandibles. It remains some time in the pupa state, but its life as a perfect insect is brief.

VARIEGATED FERN (*D. L.*).—It is only *Asplenium adiantum nigrum*. The marking is caused by insects, and, of course, will not be permanent.

PLANTING FLOWER-BEDS (*A Constant Subscriber*).—We see nothing to alter in your beds or system, except that a principle is broken by the way you put the Verbenas in beds 2 and 3. That is not their position by rule of right; towards the centre, where 4, 5, and 6 stand, is the place for Verbenas; 4 with *Calceolarias*; and 5, 6, with *Scarlet Geraniums*, would ruin an acre for effect, being in the very centre. Whether you can depend on *Gazania* for beds, depends on what part of the world your garden is in. What *Rose* to put on a wall with south aspect, depends on where the south aspect is; but as there are only two or three yellow *Roses* for a wall anywhere, try *Cloth of Gold*, and *Isabella Grey*.

SEEDLINGS OF MARTYNA FRAGRANS (*O.*).—These, just up, require the treatment of seedling mignonette in pots with respect to water—that is, to be sparing of it. They require the very same treatment as seedling balsams with respect to air and heat, and that amounts to abundance of air and very little heat. And as to soil, young *Martynia* plants require exactly the same kind of soil, and the same sized pot, as you would give to a little cutting of *Tom Thumb* just rooted and being divided from the root—and that means small pots and any odds and ends you can scrape together round the potting-bench.

PRUNING IVY (*J. S.*).—Never "clip," but cut the shoots in with the knife, unless you intend to remove all the leaves and young shoots. The latter is a good plan, for although the stems look miserably bare for some time, yet the foliage speedily recovers them closely and brightly. Whether you prune or clip, *now* is the best time.

SEEDLING CINERARIAS (*Queen*).—They are only suitable for borders. They are not novel or superior either in colour or form.

PLANTS, &c., FOR WALTONIAN CASE (*Cavendish*).—To heat a miniature greenhouse, such as you describe, you would require a small copper boiler and two inch-pipes. The water to be heated with at least three jets of gas; but you must so place the jets of gas that no effluvia from it enters your greenhouse. The plants that you name will answer your purpose, excepting the French *Marigold* and the *Brachycome*. Instead of them, procure *Calandrinia umbellata*, *Fenzlia dianthoides*, *Sabbatia campestris*, and *Spraguea umbellata*. The *Primulas* will not flower till next spring, and the *Cyclamens* will be three years before they flower. The piece of a plant you sent is, we believe, some species of creeping *Phlox*; but, from such a small dried bit, it is almost impossible to be certain what it is. When it flowers send a branch with blooms upon it, in a small box, packed first in tissue paper, and then surrounded with damp, not wet, moss, and we can then tell you its name.

NAMES OF FERNS (*A. M. R.*).—1, *Gymnogramma chrysophylla* apparently; 2, *G. peruviana*; *Callipteris prolifera*; 4, *Asplenium premarosum*; 5, *A. Fabianum*; 6, apparently a stunted form of *A. contiguum*; 7, *Lastræa*, probably decomposita, but the specimen is too fragmentary; 8, *Adiantum cuneatum*; 9, *Lastræa globella*.

NAMES OF PLANTS (*S. H. L., Camberwell*).—1 and 2, *Heaths* without flowers; 1, appears to be *Erica vestita*; 3, *Epacris impressa*, or some garden variety of it; 4, a garden variety of *Correa*, apparently *C. bicolor*; 5, *Coronilla glauca*. You may cut down the *Epacris* after flowering, but it is hardly to be recommended with the other three. Cannot you bend the stems downwards, and so induce young shoots from below?

FLOWER SHOWS FOR 1861.

MAY 18th. CRYSTAL PALACE. (Plants, Cut Flowers, and Fruit). Sec., W. Houghton.

JUNE 5th and 6th. ROYAL HORTICULTURAL SOCIETY. (Plants and Fruit). *Garden Superintendent*, G. Eyles.

JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. Sec., E. Carpenter.

JULY 6th. CRYSTAL PALACE. (Rose Show). Sec., W. Houghton.

JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show). *Garden Superintendent*, G. Eyles.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit). Sec., W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers). *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums). *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STOKES NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show). Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

MAY 21st, 22nd, and 23rd. CHESTERFIELD AND SCARSDALE. *Hon. Sec.*, Mr. Thos. P. Wood, jun., Boythorpe House, near Chesterfield. Entries close May 1st.

MAY 22nd and 23rd. BEVERLEY. *Hon. Sec.*, H. Adams. Entries close May 4th.

JUNE 4th, 5th, and 6th. BATH AND WEST OF ENGLAND. *Steward*, S. Pitman, Esq. Entries close May 4th.

JUNE 19th, 20th, and 21st. COALBROOKDALE. Secs., J. B. Chune, and Henry Boycroft, Coalbrookdale.

JUNE 21st. ESSEX. Sec., W. R. Emson, Slough House, Halstead, Essex.

JUNE 28th. DREIFIELD. Sec., Mr. R. Davison. Entries close June 22nd.

JUNE 28th and 29th. TAUNTON. Sec., Mr. Charles Ballance. Entries close June 14th.

JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. Sec., Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.

AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. Sec., W. Houghton.

SEPTEMBER 3rd. POCKLINGTON (Yorkshire). Sec., Mr. Thomas Grant. Entries close August 26th.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.

DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., W. Houghton.

N.B.—Secretaries will oblige us by sending early copies of their lists.

EARLY CHICKENS FOR THE LONDON MARKET.

It may be, when last week we spoke of the almost incredible sums sent into Sussex for the small chickens of which we were writing, that some of our readers thought of a common American saying, "If I were a Duck, I would locate at that same puddle myself." The science of profitable poultry-keeping will never be practised or understood till the supply of the early London market enters into the calculation.

Now, an extraordinary value must be caused by scarcity, and that again will be the result of a failure of the breed, or the anticipation of a natural season. The fatted chickens may be put under the last head, and the profitable period will be from the 1st of April to the 1st of June.

The first requirement is, they must be young, and by that term we do not mean comparatively young. That is a very elastic term in a poultry-yard some persist in calling all pullets that are under the year old, after which they fall into the position of hens. Pullets are very valuable in the market; but they must be pullets indeed—those that have never laid.

To speak plainer, we will say pullets fatted for sale in March and April should be hatched in November or December. Much will depend on the season and the weather; a fowl is older at the end of four hot months than it is after five if they have been cold, and ten days' warm weather at the end of four or five months will turn the pullet to the hen; she is then worthless for the table. A popular error is that there is some great secret in preparing fowls for the market, and that none but the initiated can do so profitably. There cannot be a greater mistake; all that is necessary is to fast them before killing, to pick them clean, and to send them up fresh. There was difficulty formerly in doing so. No dependance could be placed in coaches, as they were full at times, and the cost of carriage was very heavy; ordinary road waggons were too slow; but now there is no place that is not in communication with a rail, even if it be not on the line.

Young poultry will pay if sent to the London market. We are quite prepared to hear some say they have tried it and have been disappointed; but we are sure they did not follow strictly our advice given in THE COTTAGE GARDENER. There is always a good sale in April and May, and we might add the end of March. In those months there is more or less partial dearth of young poultry, while the demand is always large. There is no doubt of a sale at remunerating prices. It has been sometimes objected that those we quote every week are imaginary, and that none can ever realise them. We can assure our readers we do not quote those that are made by the choicest qualities; but, seeing such are bred, fed, killed, and packed by those whose livelihood it is to send them, and who have had many years' experience, we should not think it fair to do so.

Within these four weeks many thousands of fowls have made from 12s. to 14s. the couple. These are in every respect perfect. To realise this price they must be sent in the most saleable form. We cannot expect amateurs who have only a few dozens in the year to compete with those who have as many every day; but if we can induce them to send up a few chickens, we shall teach them a profitable mode of disposing of surplus or faulty stock, and we shall help to increase the supply which is at present totally inadequate to the demand. We do not advise them to send after May; the market is then better supplied, the weather is hot, and we will not always promise them a sale; but now, and during the next month, there is always a demand. They need not be very fat; there is no occasion to cram, but it is well to shut them up for a week or ten days, and to feed them well on ground oats mixed with milk three or four times per

day, giving each time only as much as they will eat clean. They must be fed early in the morning, and all this involves but little trouble or expense. The chickens must be good-sized; and many who have tried to sell in London and have failed may attribute it to the fact, they sent them too small. They should weigh at least 2½ lbs. each, and if more so much the better. We are very anxious this should be tried, because, anomalous as it may appear, the supply of poultry at the Leadenhall Market has decreased since it has been more generally kept than it was formerly. To pack them they should be put in a basket, the layers being divided with stiff straw. The chickens should be tight, spare space being filled with the straw, because if they have room to shake about they lose the stiffness, which is the proof of their being recently killed—a valuable thing to the purchaser; and they also lose shape and colour—both good properties.

POULTRY FOR A CONFINED SPACE.

I HAVE a piece of enclosed ground, 12 feet wide and 20 feet long, as well as a piece of grass 12 feet wide and 8 feet long, for a poultry run. The poultry-house is 3 feet 4 inches wide, 10 feet long, and 7 feet at the back and 9 feet at the front high, situate in a side entrance. There is a tunnel from the house to the run underneath the garden door, so as not to interfere with ingress or egress of the inmates of the house. Will you inform me how many fowls I shall be enabled to keep without overcrowding?—T. H.

[You would have helped us to answer your question if you had told us what breed of fowls you keep. If Cochins, Spanish, or Brahmas, you may easily keep two cocks and eight hens without overstocking. The number is not regulated so much by the size of the bird as by its aptitude or otherwise for living in a small space. Next to these would be Spangled Hamburgs,

or Game; but the latter are apt to be very quarrelsome when shut up. If, however, you do not care to keep so many birds, you may have in such a place as you describe a cock and six hens in very great comfort, and consequently in very good condition.]

COD LIVER OIL AS A REMEDY FOR PIGEON DECLINE.

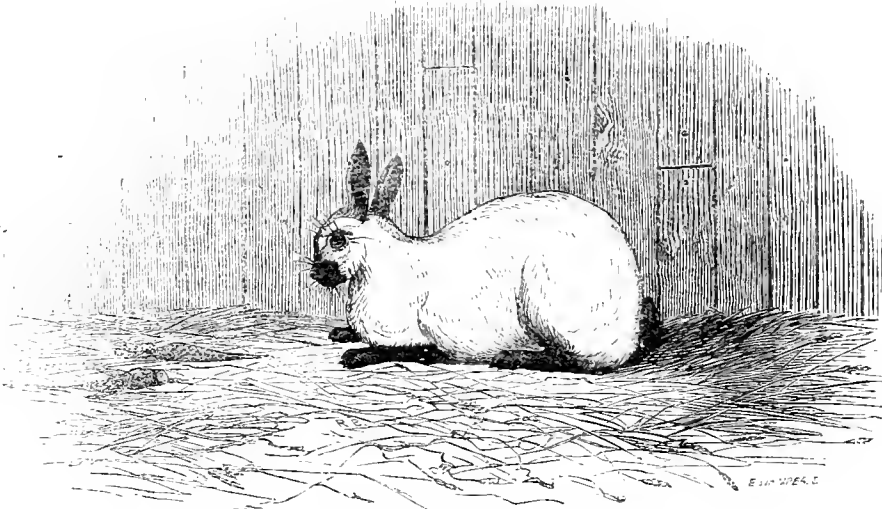
HAVING seen in a recent Number of THE COTTAGE GARDENER a letter from "COLUMBARIAN," requesting you to give a longer account of Pigeons at the different shows, I hope, as a constant subscriber, I may add my voice to his. There are, I have no doubt, several who take your publication chiefly for what they can hear on that subject; and it would be a great assistance to young fanciers if you could induce some of your correspondents to write weekly for that purpose.

I do not know whether any of your readers have tried the effect of cod liver oil on Pigeons that are "going light," or wasting away from consumption or other causes. As I had never heard of its being used, I determined to try it, and certainly it exceeded my most sanguine expectations. During last autumn I had eleven birds ill from that disease; and several of them so bad that they could neither fly nor eat, and, consequently, were as thin as it was possible to be; but I only lost one, and that was too far gone when I began the oil. I mix it with barleymeal and wheat flour, and give as much as I can get down three or four times a-day, and can safely say that if used in time, very few birds will be lost.

I also noticed a letter from Mr. Brent on turned-crowned Pigeons, and cannot understand why he does not include Turbits, as fanciers look upon the crown almost as a property, and it certainly makes the head appear much shorter than if it were without the crown.—W. H. C. OATES, *Besthorpe, Newark.*

THE RABBIT (LEPUS CUNICULUS): ITS HISTORY, VARIETIES, AND MANAGEMENT.

(Continued from page 36.)



THE CHINESE RABBIT.

THIS very handsome and interesting species is also known under the names of Polish Rabbit, Russian Warren Rabbit, and more generally as the Himalayan; but how they derive this name I am at a loss to know, although they are spoken of by Mr. Woolf in the "Proceedings of the Zoological Society" as the Himalayan; also in the Zoological Gardens they are labelled Himalayan or Black-nosed Rabbit.

M. Didieus speaks of them as natives of China, carried into Russia by the nobles to augment the number of fur animals which constitute the chief revenue of many of their lands. From Russia this variety passed into Poland, and from thence into Germany, from whence it was imported into France.

They have red eyes, like the Angora Rabbits. Their fur is whiter, finer, and more lustrous than the common white Rabbit; and the extremities—that is, the nose, ears, feet, and tail are black or a rich brown; the darker this colouring is the more perfect they are considered, but they do not arrive at this perfection till about six months old. When young the extremities are of a light mouse colour.

This race is very hardy, and often used to people warrens and open burrows. It is bred principally for its fur, which is very valuable, and is sold from 1s. 6d. each to 2s. 6d. It is the best imitation of ermine, for which the Russian nobles often sold it. It is now called "mock ermine."

This Rabbit is now very largely cultivated on the Continent. It is useful and interesting for the amateur to breed, being very pretty, hardy, and prolific, the skins valuable, and the body large enough to be useful for the table.—R. S. S.

(To be continued.)

PROFITABLE POULTRY KEEPING.—No. 2.

(Continued from page 51.)

My first attempt at poultry-keeping on system was commenced with hens of every and of no breed. I got them as I could, from the common barndoor fowl to the stately Spanish and aristocratic Game. But even this had its advantages, enabling me to form a just estimate of their peculiar good qualities, and to discard the comparatively worthless. For all purposes, however, I prefer the Dorking, and the speckled of that breed for choice, whether for the table or their eggs. With me they answered best, and were in more general demand by the poultry dealers.

But the subject of hens and their breeds is of too great importance to be cursorily glanced at. A future communication must be devoted to this part of our subject.

In discharge of the promise made in my last, I now give the readers of the "Poultry Chronicle" the results of poultry-keeping for profit.

The following account is drawn by striking the average of three years for 100 hens, having a run of about two acres of grass land, and about a quarter of an acre of yard.

Dr.	EXPENDITURE.	Cr.	RECEIPTS.
	£ s. d.		£ s. d.
To food.....	31 16 0	By return from 100 hens,	
To rent, management, loss,		at 18s. 9d. a head	93 15 0
and interest.....	16 12 0		
By profit—Balance	45 7 0		
	£93 15 0		£93 15 0

Or about 90 per cent.

Now, supposing the stock kept to reach the number of 500 hens, if the poultry keeper's wife charged her own services at £52 a-year, and those of a strong active girl at £30, including her maintenance—£82 per annum, it will be seen how handsome a return would even then be derived from this branch of rural economy.

And now for an analysis of the items of the above account. I will premise that the above profits can readily be extended, if fattening fowls were the chief aim. For instance: If my reader will refer to the Cr. side, he will find that I give the return of each hen at 18s. 9d. Thus, a hen will lay on an average

120 eggs at 1d. 10s. 0d.

Besides hatching a brood, of which she will rear, on an average, 7 chickens, at 1s. 3d. 8 9

18 9

I found the expense of rearing chickens up to the age of from ten to twelve weeks did not much exceed 1d. per head per week, and having a good grass run. Hence, if a couple of chickens cost 1s. 8d. to rear for sale, and then brought 2s. 6d., the profit would be 50 per cent.; but if they were kept until they were five months old, costing 2s., they were then worth 4s. 6d. or 5s. each, thus giving the extraordinary profit of 125 or 150 per cent.

To obtain these prices, however, it is but right to say, that the young poultry must be ready for market when game is out of season, and just at Christmas; for though game comes in in August, it is not until the Partridge falls that the poultry keeper finds the demand lessen and prices drop.

And this is well, even as "all is well" which is ordered by our Divine Father. The tired hens need rest, and it is the season Nature enjoins for them, for they have done their work well and patiently; and if their master will continue to feed them abundantly, and not neglect them during their time of non-productiveness, they will yield him a golden harvest at Christmas. I know no prettier sight than a hen with her young brood, and does not our Saviour himself use them as a simile towards the close of His holy life?—LEIGHTON.

(To be continued.)

PARROTS DEPRIVED OF WATER.

IN your Journal I am much surprised at your reply to the lady correspondent, "A. Z," at the ignorance of her adviser to

keep her Parrot without water. The general belief is that water is injurious to them, and I know it is in my neighbourhood, where several are kept; and with regard to myself, I have had one for more than ten years, and have never given it any water, and it is very healthy. I have even offered it water but it will not take it. We feed it simply with soaked bread, with the water moderately squeezed out of it, and hempsed.—W. T.

[It may be that Parrots, fed upon soaked bread, "with the water only moderately squeezed out of it," may find enough moisture to preserve them from thirst; but we are quite sure that no Parrot or Cockatoo ought to be kept without a tin of water attached to his cage to drink from if he required. Moreover, we are equally sure that the opportunity of taking a daily bath should be offered him. In a state of nature those birds have such opportunities, and no animal is judiciously managed that has not a supply of everything as nearly resembling as possible the supply afforded by Nature in the animal's native place. The best specimens of the Parrot and Cockatoo we have known were well supplied with water, both for drinking and bathing.]

BREEDING CANARIES.

A FEW weeks back I put three Canaries up for breeding, two hens to one cock. Last Thursday or Friday one of the hens began to build, and finished her nest by Monday morning. On Tuesday I was rather surprised to find she had filled up the nest with cotton wool. I gave her more building materials, as I thought she might, perhaps, build again on the top of the old nest. She began on Wednesday, and made it about three quarters of an inch deep, and has not made it any larger at present (Friday night). Do you think there is any chance of their breeding? and what was the reason of her filling up the nest? The other hen has not begun to build—in fact, the cock drives her about the cage, and she drives the other hen. What am I to do in case like this? The cage is 34 inches wide, 20 inches broad, and 37 inches in height. I suppose that is large enough for three birds. The cock does not sing. He has never been mated before, but the hen has.—T. M. N.

[In placing two hens with a cock it is always advisable to put them together first, and let them become well acquainted before they are put up to breed with the cock. As the two hens now quarrel it will be safest to part them, although the cage would otherwise have been large enough. The nest which is built too full in the middle may have part pulled out, and the remainder made smooth by means of a heated iron ball or stone; the eggs can then be replaced, and all extra building material removed from the cage.—B. P. B.]

CANARIES' FEET DISEASED.

ALLOW me to offer some advice to "R. S. V.," page 17, on the subject of a diseased Canary's feet.

If the perches, floors, and even the wirework of the cage itself are not kept well scraped, and scrubbed with scalding water and soap, they are liable to become infested with a minute inflammation—causing insects so small as almost to defy a magnifying power. These titillating animalcules form preserves, especially on uncleaned perches, in neighbourhood with the bird's feet and legs; and they eventually disperse themselves in myriads over the body of the poor perch, which may then be compared, parasitically, to those attacks on the human frame, the mere mention of which is sufficient to cause blessings on the Duke of Argyle, and to make us take every preventive caution to defend our feathered favourites from its ravages. For this purpose scrape over the convex surfaces of the perches every morning, as well as the floor-board when it is withdrawn from the cage, to release the debris, previous to the board being fresh sanded. Before it is returned insert the scraper, and clean away any residuum from off the bottom of the cage, well working the implement over its surface; when any living thing there will be made to feel very uncomfortable, and consequently emigrate.

About every six weeks during the summer, and twice or so during the winter, fasten down the windows, turn the birds out into a room, lock the door and put the key in your pocket; and take the cages and perches, and cause them to be well scrubbed—wirework and all—with soap and scalding water, and when they are dry, return the birds into them; or, rather, they will go in of themselves if they are kept without food half-an-hour or so beforehand.

Eschew sugar, sweet cake, hemp, rape, and moss seeds. Adhere to canary seed, plantain, and minute crusts of bread, now and then, as cereal food; groundsel, chickweed, shepherd's purse, or water cress, as never-failing supplies of green food; and apples, pears, and strawberries, in season, as pomological diets. When the birds are moulting, give modicums of chopped boiled egg.

Give the birds to drink pure fresh water every morning, and a wired-over cold-water bath, hooked on opposite the meanwhile-opened door of the cage, frequently, even during the coldest weather.

"Dick," a Canary, we have had in vigorous health during eight years, takes good care to remind us of remissions on our part anent the bath by imaginary dippings and plungings, shakings and bawlings; and when the glass is down below zero, his amphibious propensities are sufficient to make one shudder.

Do not keep the birds too hot during winter, though below 50° or 45° the temperature should not go; also give plenty of light and air. We, for a long time, bred Canaries in quantities, and have kept them all our lives, and never found any difficulty in warding off disease, and preserving them in health under the above dietary tables and attendance to cleanliness.

Our "Dick" is a great traveller, and makes himself most popular on the road. I remember once, in particular, at the Durston station, where we were kept waiting an unconscionable time for a train to take us on to Plymouth, "Dick" was placed in his travelling cage upon the apex of a heap of luggage, and his powerful song attracted every traveller to the spot. It was as good as broiled bones for supper, on board ship: every one soon became chatty friends, and *ennui* knew us not. Even the porters could not withstand the fascination; and it was really relishing to see the big fellows—on whom an ichthyosaurus might, one would have fancied, only have been able to make an impression—powerfully attracted to the spot, to enjoy the twitterings of "Dick."—UPWARDS AND ONWARDS.

THE CANARY AND THE BRITISH FINCHES. (Continued from page 35.)

9.—THE CHAFFINCH (*Fringilla Cælebs*).

German, Der Bachfinck.

French, Le Pinçon.

THE common Finch or Chaffinch, known also by the names of Twink, Shelly, Chaffy, Boldie, and Beech Finch, and in Scotland as Shilfa, has been surnamed *Fringilla Cælebs*, or Bachelor, because of the separation of the sexes in winter in those countries where they migrate. The females usually leave first, and return last; which, however, is also the case with some other migratory birds in this country. I believe the migrations of the Chaffinch are only partial, most of them remain with us the whole winter.

In plumage the males are certainly handsome birds, though the colours are somewhat softened and subdued. The head is dark bluish-grey, the back brown, the wings black, the base of the secondary wing-feathers and the ends of the larger covert-feathers being white, and thus forming bars on the wings; the breast is a dull pinkish-red, the belly inclining to white, the rump greenish, the tail dark, having white marks on the inner webs of some of the outer feathers. The plumage of the females is much duller, the head, breast, and upper parts being of a greyish-olive brown; the hen is also rather smaller than the cock.

The young ones all resemble the mother; but the males may be distinguished by the blacker colour of the wings, and their having clearer and more white; nor do they attain the full colour of the male till after the second moult. In autumn the beak of the cock is pale, but, as the spring advances, it changes to a deep blue shade; nor is his general plumage so bright in autumn and early winter as it is in spring, when winter and time have worn off the duller edges of the feathers, and he appears in his nuptial dress.

The Chaffinch breeds early. The nest is placed in the fork of a tree or bush, frequently in a fruit tree, and is a very neat and beautiful construction—smooth and rounded in the form of a ball, depressed at the top, firmly felted together with webs and wool, covered externally with moss and lichen, and often so much resembling the bough on which it is situated, as to be discerned with difficulty. Inwardly it is lined with thistle down, hair and a few feathers; the eggs, from three to six in number, are of a dull dirty white, spotted and streaked with coffee brown. Incubation lasts about a fortnight.

The food of the Chaffinch consists principally of insects, as caterpillars, grubs, moths, earwigs, &c., on which they rear their young; and in the destruction of which they do an immense amount of good, and therefore should be protected as much as possible. In winter, when their natural food is scarce, they are driven by hunger to feed on seeds; these they gather from the ground, and not from the plant as most other birds occasionally do. In hard weather they may be seen searching the horse-dung along the road for undigested grain, or collected in the farmyard in search of hay seeds, or scattered corn; and considering the great good they do all the summer, they well deserve a tride in winter.

The Chaffinch rarely eats green food; but in spring, when insects are scarce, they sometimes annoy the gardener by pulling up his young radishes, or cabbage and caulidower plants, and eating off the white parts of the root, occasionally also attacking the early peas in the same manner: it is, therefore, necessary to protect these from their depredations by means of nets, or strings of feathers, and not to kill the poor hungry birds that, all the summer through, are so active in destroying those insects which, if unchecked, would devour our fruit and convert our gardens into wildernesses. The Chaffinch is one of the few birds that eat that destructive insect the gooseberry caterpillar.

Young Chaffinches, if intended to be reared by hand, should be taken early from the nest, as soon as the tail-feathers begin to show, or they will soon fly, and then they are sullen and do not open their mouths readily to be fed. They should be fed on a paste made of sopped bread, hard boiled egg, and maw seed, or the bread may be soaked with milk; but it must never be given in the least sour. As the old birds rear their young exclusively on insects, principally on caterpillars, it is obvious that in artificial feeding some such food as egg or milk must be used to insure their well-being. Rapeseed is, in my opinion, decidedly injurious. Numbers of young Chaffinches raised on it die at the first moult; and I have noticed my old birds rejected that seed while anything else was to be had. The old birds may in confinement be fed on canary seed, oats, (shelled oats are best), bread, and occasionally, but sparingly, a little hempseed by way of treat; or during the moult a few mealworms, ants' eggs, or earwigs, will be relished and often found beneficial.

Of all our native Finches the Chaffinch is the most delightful songster. His short, but sharp, clear, thrilling note is the harbinger of spring. His joyous lay always brings to my mind the blossom of the sweet-scented hawthorn, the busy hum of the bee, the opening of the buds and early flowers, when Nature in all her freshness is awakening from the dreary sleep of winter, and when the fruit trees and orchards are clothed in snowy bloom, and the white petals are being scattered in showers by the gentle breezes. Who then but must admire the Chaffinch when, perched on a spray, he gives utterance to his pent-up love in a joyous burst every few seconds, jerked forth with an energy which tells of his sincerity—his loud call *twink, twink*; or with erected crest and waving tail, he utters his plaintive purring note, *churree*, to his mate, who is perhaps busy forming their nest, and his still louder and angry warning *pink, pink*, if he fears his brood will be discovered? The song of the Chaffinch is composed of three cadences, delivered with that earnestness which is so attractive to the ear of the fancier; and on which account it is so highly prized, not only in this country, but also on the Continent. The terminal notes or last cadence is that which attracts most notice, and as it varies in different individuals, it usually gives the name to the song and value to the bird. Mr. Hipkins, who so well describes the song of our birds, observes, "The English fanciers have several strains of birds thus denominated in former times, the choeweydo, the whitfado, the kissmedear, &c.; but the choeweydo is considered the best song, one of the best limbs being, *ching, ching, ching, ull, ull, ull, choeweydo*; the last note the oftener repeated the better, technically termed "heavy in the month." This applies to all the notes, the principal difference being the termination or finish of each strain; the birds vary the notes in each limb, but terminate with whitfado, kissmedear or choeweydo, according to the strain to which they belong." He also remarks, "The English fanciers will sometimes travel twenty miles to peg a bird, and I have seen good blind pegging birds sold from £2 to £3 each."

It is a curious fact well authenticated by fanciers that the birds which sing the choeweydo, or ehnekwidder song best are caught in Essex, therefore called the sweet-song Essex Chaffinch, while the other strains are caught in the adjoining counties, and other parts of England.—B. P. BRENT.

BEE-HIVES AND THEIR APPURTENANCES.

(Continued from page 53.)

WOODEN-TOPPED STRAW HIVES are favourites, and used principally for any early prime swarm set aside as a swarmer, affording superior facility for removing the surplus store compared to the dome-shaped, which are more used for seconds and late prime swarms not expected to yield anything the first season. These are cylindrical in form, the straw bands began on hoops, are 14 inches wide and 7 inches deep. Round the topmost band of straw one or two outer or second bands are continued, which serve as a rest for a flat circular ring of inch-wood—inner circumference 14 inches, outer 18 inches; on this is placed the usual 1½-inch bars with slides secured with three-quarter-inch brass screws, therefore moveable at pleasure; this top is fastened to the hive by stout screws inserted through the under side of the outer straw bands. Any inequality between the straw and wood has to be made up with putty or Portland cement: little crevices about the windows in the same manner. In case the latter should start from its place, I usually slip a little cord over the top and bottom of it, which, lying between the straw bands, is not much noticeable.

SLOPED WOODEN-TOPPED STRAW HIVES, I have latterly adopted as an improvement on the last, taking the hint from my roof bees, which always select a part with a good bevel. They are in every respect similar to the above, with the exception of the straw bands being kept thinner in front, thickest behind, and gradually tapered on each side between the maximum and minimum, the one 9 inches and the other 7 inches, including the hoop. I think the bees thrive fully better, and come through the winter in finer condition in this hive, ventilation being doubtless promoted by the bevel. Little slips of wood tacked on prevent the super from sliding.

DEPRIVING-HIVES.—For depriving-hives, the most suitable material is wood. The shape, is unquestionably the nearest approach to a sphere—an octagon. This and double swarms were two points on which that good old bee-keeper Thorley was perfectly sound, writing nearly 120 years ago: therefore the

STEWARTON OCTAGON-HIVES have a prominent place in my apiary, being, I feel confident, the cheapest and best ready-made hives for practical bee-keeping to be had. I order mine direct from Stewarton, where I find, from the demand, they can be purchased in quantity, with better workmanship, at a price nearly one-third less than local tradesmen will undertake to supply them at. To those of your readers who have them, they require no description; to those who do not yet possess them, my advice is, Obtain them as soon as possible, and they will by-and-by speak for themselves. Should these lines catch the eye of any of their makers, I would suggest the propriety of sending along with each set concise printed instructions as to their management. I am led to make the remark from observing, in a recent Number, a querist asking if they were wrought collaterally, and also meeting a clerical friend who complained of his want of success. The first question elicited the cause—How were they peopled and protected? A first swarm, no cover to be sure, that would quite spoil their appearance. Expect honey from a *single* swarm, in a set of Stewarton-boxes the *first* season—half-inch wood unprotected! Why, the only wonder was, that, despite all the attractions of such a terrestrial paradise as the manse garden, they had not at once made a precipitate flight back to the old-established stock from which they had seeded. Such of your readers as occasionally indulge in amateur hive-making would find the advantage of ordering along with their boxes a supply of bars and slides, forming the tops of these hives, long lengths preferable—say 7 feet for the former, 7½ feet for the latter. Bars 1½ inch for stocks, and 1½ inch for supers. They can be easily cut into any length, and fitted, instead of the clumsy adapters and crown-boards, to all the old hives of the apiary when again to be used, or the new ones about to be constructed. Odd ends of slides, the upper edge run off with a plane, are very useful to work shutters, moveable entrances, &c., in. I like to procure at the same time several additional octagon honey-boxes, both the fourteen-inch for these, and the twelve-inch size; they make cheap and tasteful supers for all the other flat-topped hives.

The beauty of the Stewarton-supers, that so attracted the lingering admiration of "UPWARDS AND ONWARDS" when in Glasgow, was not, as he supposed, indebted to the dark-coloured product of the heather then in bloom, which, on the contrary, would have quite spoiled their surpassing purity. They are

generally to market before it comes into flower. His surprise at the superiority of the octagons surely carried him too far when he awards the palm as a bee country to our poor bleak Scotland, over the rich pastures and flowery meadows of his own England. The contents of these supers are drawn chiefly from one little plant—the white clover. The light sandy soil of a large portion of Ayrshire is favourable to its natural production, even were the farmers so neglectful of their own interests as not to sow it liberally when laying down their pasture. The bee-keepers reap their share of the benefit by the painstaking and skilful manipulation of double prime swarms in a good hive while it remains in bloom; indeed, in many instances, moving them inland bit by bit, as the flower fades, to later localities, till the supers are completed; and then, and not till then, as a reward for their industry, are transported to the moors to rifle the purple heather of its dark juice for their own benefit during the winter. Such, having little local value, being sought after principally by the tourist. Thyme honey is only to be had in quantity in some districts on the border.

SQUARE WOODEN HIVES retain a place with me for two reasons only—the first, that to the amateur doretailing *four* boards neatly together is much less of a puzzle than *eight*; secondly, they afford space for a larger window for observation. The bulk of these hives is 14 inches square within, by 7 inches deep, to work with the large-sized octagon supers. They are fitted with eight bars, six of them 1½ inch wide, the remaining two 1½ inch, are placed one at each end. These every bee-keeper knows are devoted exclusively to honey, and are, therefore, better than the broad size. I have also tried, and still have, nine bars 1½ inch wide in some fourteen-inch straw hives, keeping them closer at the centre, so as to leave as wide end-openings as possible. The bars are notched out at each end the breadth of the back and front, so as to allow the slides to work flush thereon, project barely an inch behind (the corners nipped off for appearance sake). The object of this is to assist raising the bars when the three-quarter-inch screws by which they are fixed have been drawn. They are constructed of well-seasoned yellow pine front and back inch-dressed, ends three-quarter. The inner sides, unless very clean, had better first be dressed, and then run over with a toothling plane. Should that implement not be at hand, a good substitute is a bit of perforated zinc, the cut edge drawn along with the grain of the wood till it be well roughened: this materially assists the ascent of the heavy-laden forager. One window of *thick* glass 11 inches by 4½ inches placed behind, when bedded in the putty to prevent its starting, fix with four small sprigs; the putty above the glass then laid on. The shutters of wood 12 inches by 5½ inches dressed to a quarter of an inch thick; a check in the front edge top and bottom to work in pieces reversed slides as already described for straw hives. If I used a second window it would be in front, although more in the way there, it is of use by throwing the light through the hive at first, and showing the commencement of breeding in the spring: whereas an end window is nothing but a useless disfigurement to some hives, exposing to view only the end-sealed honeycomb. I have also wrought with considerable success, a size 13 inches between the ends, 12 inches front to back, and 9 inches deep, fitted with eight bars 1½ inch wide, in every other respect same as the above, with a proportionately large window and shutter, both fitted with end-handles for lifting, 4½ inches long by 1 inch deep, and three-quarters out, and entrances moveable, as will afterwards be described, 5 inches by three-eighths of an inch. These, as well as all my hives, are, of course, duly protected from the weather, when standing singly outside, by a good fresh straw thatch or some other cover.—

A RENFREWSHIRE BEE-KEEPER.

(To be continued.)

HOW I BECAME AN OXFORDSHIRE BEE-KEEPER.

SOME eleven years ago, a kind neighbour, when flitting from these parts, presented us with a hive of bees, and where to place them I could not tell, for from the only corner where I could domicile the insects I had grubbed up the protective end of an old yew hedge, anticipating the erection there of an orchard-house; but owing to the umbrage taken by a neighbour, and a flaw which the lawyers found against the rector felling two oak trees to repair his house upon his own ground, which had been the custom far beyond the memory of the oldest inhabitant, an

injunction in Chancery caused the timber to lay and rot, my orchard-house to remain "the baseless fabric of a vision," and to cost the rector between £200 and £300.

Now, having lived with the rector nearly all my life, it grieved me much to think that I should so unwittingly have been the cause of his losing so much money; but where to place the bees, that was the question. It was of no use to stand still and call upon Jupiter for assistance so I at once ran up a wattle-work fence, 7 feet high, on the site of the removed hedge, to be annually strengthened by driving in stout poles, planted Irish ivy against it, and, behold, from that time an evergreen shelter was established. Had I erected an orchard-house there, later experience has proved that it must many a time have stood the risk of being blown away; or, at least been partly destroyed over and over again by tiles and chimney-pots.

"Why, Brotherton, I told you to place the hive in the cloth, or otherwise rest it upon a piece of board the full size of its bottom." "Ah! I didn't use the cloth, for I thought that piece of board would do very well at this time o' night." "Thought! I suppose you calculated on the bees remaining as dormant and glued to their bed as you would be yourself? But look! it is not so, you have scattered them along the road, and numbers are crawling about you. There now, quick march! pray go and bring the stand as quickly as possible."

Poor old Brotherton! that was easier said than done. He has in his time been fighting for his country in different parts of the world, and is awarded a small pension, with one of his legs from the hip downwards twisted, and fixed at nearly right angles with the other, so that neither his pace nor the rough journey to the bees was much to be wondered at.

It was at Michaelmas time the hive thus arrived to us, considerably weakened by the distribution of the bees. The remainder lived through the winter, and became strong and populous during the next season, without offering to swarm. In the following year they threw a strong swarm and a cast, and three common stock-hives remained our bee capital. I was quite a novice, and did not understand supering, and as to destroying the poor bees for the sake of taking their honey, I could not do it; I had become attached to them, and they had become attached to me, and my attention was becoming excited by Mr. Payne's writings in *THE COTTAGE GARDENER*. Withal, the hives, after the manner of the old-fashioned common hives, did not behave through the next winter satisfactorily. The queen died in the swarm first hived, and the bees forsook it and the honey; and the cast put into the other hive kept me continually dancing attendance with an elder-wood trough feeder. The original hive remained strong and healthy, and from the quantity of dead bees and fighting observed in February, I became aware afterwards that all the bees that could do so had joined it from the queenless hive.

In fact, I was getting quite bewildered, and I determined in future to adopt Mr. Payne's cottage-hive system. He was written to, and kindly sent me a supply of his flat-topped hives, supers, and a bee dress, and I set to work with fresh vigour. My original hive threw me a swarm only the third year, and the cast stock gave a late swarm, so I had now established two new hives, and four in all. The early swarm in the new hive worked us some honey, and I cut a hole also in the top of the original hive, which gave a full super—great events!

Two years more passed, and I had established a rank and file of the Suffolk hives, and notwithstanding the supering, they would swarm; and in the winter time I found that deaths, reverses, continual attendance, and anxieties attached to them, even till my state of mind was becoming worse than my first.

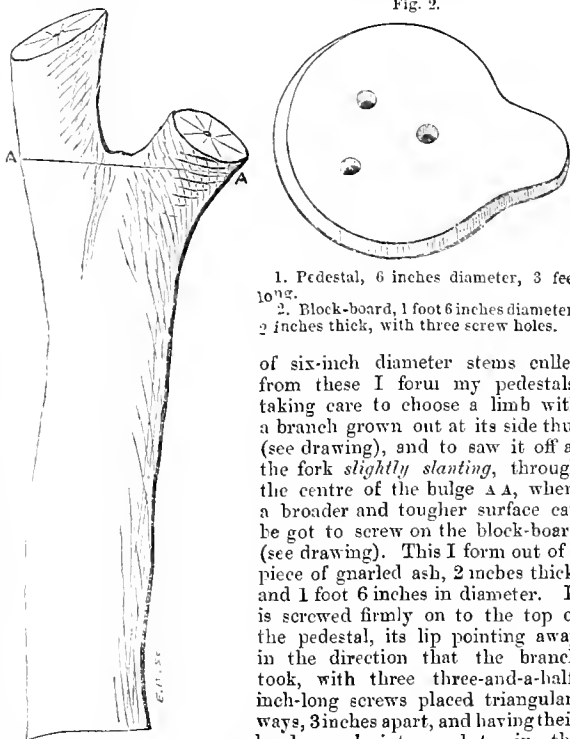
Then followed experiments hopeful and hopeless; the jokes of my friends, and the metal (in two senses of the word) I was put upon, served to urge me on considerably, and to fill a lumber-room with I do not know what of bee apparatus, a description of which, and all that it led to, it would be useless to cumber these pages with. One plan, however, began to decide for me its superiority and I have that original hive now in a flourishing condition, after doing duty for six years. I exhibited a glass, and a straw super of honey worked from it placed on a new representative-hive *pro forma*, at the Oxford Horticultural Show, on the 23rd of June, 1857. It was mentioned in No. 458 of *THE COTTAGE GARDENER*. Certainly it gained its full share of attention, and when I was absent from its presence I placed Brotherton conspicuous, to answer what questions he could, and he told me a Frenchman was eager to purchase the whole thing as it stood "at any price;" but it was

not for sale: my object entirely was for the poorer sort to see it and to take the hint; and you know from letters I have sent for your perusal occasionally, the judgment expressed on the quality of my honey, and the glass mentioned above was pronounced, at Messrs. Fortnum and Mason's, one of the best samples that ever entered their establishment. I also gained credit there for my plan of packing honey for carriage. So having already been "smiled upon," and, furthermore, considering six years' trial a sufficient recommendation, I will describe the plan as being most applicable to myself, in the hopes that it may also prove beneficial to others.

The aspect of my apiary is very good—*south-east, and gaining the early morning sun*, and from the situation of some beech trees, it becomes shaded during the sunshine of summer by twelve o'clock, and remains so during the afternoon through the agency of the wattle-work fence. The passages in italics must be taken into consideration by all apiarists in embryo, and allow me to add, they are well worthy of acceptance to all bee-keepers whatever. The fence adjoins a corner of the house. My nearest hive is 8 feet distant from the latter (the garden front upon which my espereone vines are trained), and all the hives are placed in a line, 4 feet from each other, measuring from each pedestal, and 5 feet from the fence; this interval, and that flanking the house, are gravel walks. The ground in front of the hives is occupied as flower-border, and that beyond is cultivated garden. All operations are performed at the backs of the hives, and no person's walk, or shrubs and vegetables are allowed to grow so high within a certain distance as to interfere with the starting-point of flight, or return of the bees, and nothing immediately beneath and around the hives is allowed to grow; but the soil there is frequently stirred during summer and winter time with a Dutch hoe, for the disturbance of ants, &c., and to keep the soil dry and warm. A few loads of "log wood," stout limbs from barked oak trees, are annually purchased here to be sawn and riven up to heat the oven. Out

Fig. 1.

Fig. 2.



1. Pedestal, 6 inches diameter, 3 feet 10 in.
2. Block-board, 1 foot 6 inches diameter, 2 inches thick, with three screw holes.

of six-inch diameter stems culled from these I form my pedestals, taking care to choose a limb with a branch grown out at its side thus (see drawing), and to saw it off at the fork slightly slanting, through the centre of the bulge *AA*, where a broader and tougher surface can be got to screw on the block-board (see drawing). This I form out of a piece of gnarled ash, 2 inches thick, and 1 foot 6 inches in diameter. It is screwed firmly on to the top of the pedestal, its lip pointing away in the direction that the branch took, with three three-and-a-half-inch-long screws placed triangularly, 3 inches apart, and having their heads sunk into sockets in the block half-an-inch deep, so that in case of after-warps a plane may be worked over its surface to keep it perfectly level. The pedestals thus formed measure 3 feet 3 inches in length; the least split in them is well puttied up, and they are painted a dark ivy green colour, excepting the surface and the parts that are to become inserted in the ground—1 foot 6 inches deep at least. The soil that is dug from the holes to admit them, I take care to return it all again by degrees, and well ram it around

the stocks with not too large a rammer, for no post was ever properly secured in a hurry; and unless all the soil is returned that was taken out, I would not willingly hang my gate or place my bee-hive upon it.—UPWARDS AND ONWARDS.
(To be continued.)

VARIETIES.

MONROE'S PATENT EGG-BEATER.—We know of no minor invention more really useful than this. Every cook knows the time, and the arm-aching, and disappointment attending upon the beating or whisking of eggs, &c. Now, all this is prevented by Mr. Monroe's invention. It fixes to a table or dresser, and by turning the handle of the machine, a rapid and double agitation is given to any batter or liquid mixture on which it is employed; and in a few minutes works them to a degree of lightness, very far surpassing that which can be produced by the ordinary hand-whisk.



SEWING MACHINES.—The introduction of the sewing machine has established a new era in the manufacture of all articles requiring the use of the needle. The rapidity with which the invention has been perfected and applied to general use, is the most remarkable fact in the modern appliances of machinery. The structure of the machine has been so finely adjusted, that now every species of sewing can be performed with the utmost accuracy and neatness.

Six years ago, there were but 2500 machines in the country, whilst at the present time there are in operation nearly 100,000. The following statement gives the progress made in this department of manufacture from the year 1853 to 1859:—

In 1853—Sewing machines made	2,500
1854 " " " "	5,000
1855 " " " "	3,600
1856 " " " "	7,400
1857 " " " "	12,785
1858 " " " "	17,659
1859 " " " "	48,000
Total during 7 years	96,944

The manufacture of sewing machines is becoming an important branch of industry. One firm alone (Messrs. Wheeler and Wilson), employ upwards of 400 hands, with a monthly pay roll of 40,000 dols.; their works covering an area of nearly four acres in extent, and giving employment to a capital of 400,000 dols. Estimating their average selling price at 85 dols. (their value ranging from 50 dols. to 150 dols.), we have 8,240,340 dols. as the total amount for machines sold during the last seven years, one-half of the sales having been transacted within the present year. To show the importance of the export trade, we may take the following as a criterion of its extent.

Export of sewing machines from the port of New York for the week ending December 12, 1859:—

	No.	Value.
To Liverpool	3	375 dols.
To Glasgow	cases 129	12,408
To Constantinople	boxes 6	315
		13,098

We subjoin a statement of the several purposes to which the machine is applied, with the time occupied in making each article as compared with handwork.

	By machine.	By hand.
	Hrs. Mins.	Hrs. Mins.
Gentlemen's shirts	1 5	13 51
Frock coats	2 38	16 35
Satin vests	1 14	7 19
Linen vests	0 48	5 14
Cloth pants	0 51	5 10
Summer pants	0 33	2 50
Silk dress	1 13	10 22
Merino dress	1 4	8 27
Calico dress	0 37	6 37

Ordinarily at the rate of a yard a minute.

In addition to these purposes, this invention is applied to the manufacture of collars, cloaks, hats, caps, gloves, umbrellas, boots and shoes, harness, upholstery, &c. On striking an average from the above table, we find that the amount of work done by the machine is in the ratio of 7 to 1 as compared with handwork. Estimating the number of machines now at work

in this country at the safe computation of 90,000, and supposing that of that number two-thirds, or 60,000, are in constant operation, we shall have an amount of work performed equivalent to the production of 360,000 hands; or, to put the matter in another light, it would appear (deducting 60,000 for those employed on the machines) that the introduction of the sewing machine has displaced 30,000 sewing hands. It is manifest, however, that the latter consequence has not been realised; for it is a fact that hand-sewing labour is now both as scarce and as dear as it was seven years ago. The invention, therefore, has been no detriment to the operative class; but it has proved instrumental in developing the various branches of trade to which it is applied, by a large saving both of time and cost in manufacture. Its bearing on the health of a numerous class of our working population is most beneficial; the unhealthy posture, the closely packed work-rooms, and the painfully close application which belong to hand-sewing being exchanged for an easy and pleasant employment. This is one of the many boons conferred by the great ameliorator of human toil—machinery. All honour to the inventor of the sewing machine!—(New York Herald.)

HOME-MADE VINEGAR.—Every housekeeper with a yard or garden, on which the sun shines the greater portion of the day in summer, should make her own vinegar; it is so good, so cheaply made, and above all so pure and wholesome. Put 1½ lb. of brown sugar to 1 gallon of water; boil it as long as any scum rises, which should be taken off as fast as it comes to the surface. When milkwarm, or, say, at a temperature of 60° or 65°, dip a slice of toast in yeast, and put it in the liquid; which should then be put into a pan, or tub, to work for one day, then be put into a cask, which should be painted outside to keep it from being injured by the weather. The cask should then be placed on bricks to keep it from the ground, in a sunny place; a piece of coarse muslin should be nailed over the bung-hole, and a tile placed on it to keep out the rain. If this simple brewing is done in March or early in April, the vinegar is fit for use in October following. It is good for pickling and all family uses.

OUR LETTER BOX.

FOWLS DYING (A Constant Reader).—The bird sent was too decomposed to be of any service in forming an opinion. The symptoms, "a swollen crop, purple comb, and lingering five hours," are those of poison; but we wish to speak guardedly, as poisoning is too often held to include malice, whereas there are many things that fowls may pick up, and which may be fatal. A yard is sometimes depopulated by corn that has been arsenically dressed for sowing being thrown to the fowls; or water is poisoned by the remains of boot-top or copper cleansing being thrown down where the fowls frequent. Remove the fowls from the spot, and purge them thoroughly with castor oil, a table-spoonful every day for three days. Feed on oatmeal mixed with strong beer.

BOOK ON POULTRY (H. E. G. S.).—The best coloured portraits of fowls are in Johnson and Winkfield's "Poultry Book," a copy of which costs about £1; it also contains abundance of practical matter. Mrs. Blair's "If a Fowl," is price 7s. 6d., and is an excellent practical directory; so is Mr. Baily's "Fowl," price 2s., and so is our own "Poultry Book for the Many," price 6d. They may all be had at our office, or be sent free by post on the receipt of postage stamps to their respective values, and two extra for the dearest books, one extra for the last named for postage.

LUMP IN THE THROAT OF YOUNG PIGEONS (Leghorn Hunt).—When the lump of pus in the Pigeon's throat can be got at, remove it with a wooden instrument, and touch the place with caustic. As to the cause, I suspect it is often caused by mice wetting on the food. Drinking from metal vessels has been also supposed to induce the disease. As a preventive I would advise the Pigeons to have free access to salt and green food.—B. P. BRENT.

BREEDING CANARIES, MULES, &c. (A Regular Subscriber).—You will do well to take the hen Canary from the cock, with which she fights, or shut her in the small division of the cage till the cock has become master of the place, and she will then, most likely, beat her into submission. It would be a pity to separate the Goldfinch and his mate that agree so well. I do not think the loss of the toes will prevent the hen Canary breeding. See that the perches are of good size and firm. Probably she will not lay till her foot is well. A Linnet of the preceding year will breed very well with a Canary; but it is generally considered that a two-year-old bird is better to breed from.—B. P. B.

WEASELS (J. P.).—Keep the chickens shut up in a place without holes large enough for a Weasel to enter. Set a steel rat-trap baited with a piece of very fresh meat.

LONDON MARKETS.—APRIL 22.

POULTRY.

We shall have little to note in the way of change in this market till we have warmer weather. The increase is more in the trade than the supply.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	6 0	to 6 6	Guinea Fowls	3 6	to 4 0
Smaller Fowls.....	5 0	" 5 6	Hares	0 0	" 0 0
Chickens	3 6	" 4 0	Rabbits	1 4	" 1 5
Goslings	7 0	" 7 6	Wild ditto.....	0 8	" 0 9
Ducklings	5 0	" 5 6	Pigeons	0 8	" 0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	APRIL 30—MAY 6, 1861.	WEATHER NEAR LONDON IN 1860.					Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.					
30	Tu	Valeriana tripteris.	30.394—30.331	deg. deg.	E.	—	m. h. m. h.	m. h. m. h.	m. h. m. h.	m. h. m. h.	m. h. m. h.	m. h. m. h.	
1	W	St. Phil. & Jas. Pr. ARTHUR D	30.324—30.125	64—35	N.E.	—	36 af 4	19 af 7	52 0	20	2	56	120
2	Th	Oxytropis montanus. [1850.	30.098—30.042	66—38	E.	—	34 4	20 7	41 1	22	3	4	121
3	F	Epimedium alpinum.	30.156—30.133	67—40	N.E.	—	32 4	22 7	39 1	23	3	11	122
4	S	Silene acaulis.	30.202—30.063	66—33	N.E.	—	30 4	24 7	35 1	24	3	18	123
5	SUN	ROGATION SUNDAY.	30.111—30.085	65—30	E.	—	28 4	25 7	31 2	25	3	24	124
6	M	Ajuga Reuevensis.	30.165—29.980	60—32	E.	—	26 4	27 7	28 2	26	3	30	125
				59—30	E.	—	24 4	28 7	42 2	26	3	35	126

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 61.5° and 39.4° respectively. The greatest heat, 81°, occurred on the 4th, in 1833; and the lowest cold, 20°, on the 2nd in 1855. During the period 143 days were fine, and on 95 rain fell.

FLOWER SHOWS IN TOWNS FOR THE WORKING CLASSES.



ONG ago we began collecting examples of "gardening under difficulties;" and when we received, a few days since, a schedule of prizes to be awarded to members of the working classes exclusively in the London parish of Bloomsbury, we contemplated it as an addition to our store for use at some future period. At first it struck us it must be a joke—some satire upon our metropolitan shows, and that 'Bloomsbury' was selected as an apt name for such a quiz.

Our readers, however, will be no less surprised than at first we were, to find that it is sober earnest. There not only is to be such a Working-class Flower Show in Bloomsbury next June, but there was one last year, and a successful one, too. Let us, in the first place, detail the entire prize list, and the rules which will regulate the Exhibition. They are as follows:—

"BLOOMSBURY FLOWER SHOW.

"AN EXHIBITION OF PLANTS BELONGING TO THE WORKING CLASSES OF THE ABOVE PARISH WILL BE HELD (D.V.), ON WEDNESDAY, JUNE 19TH, 1861, IN THE NATIONAL SCHOOL-ROOM, BURY STREET.

"The following Prizes are offered for competition:—

"1. Prizes for Adults.

"1. Persons living in the little Coram Street district—viz., Little Coram Street, Abbey Place, Chapel Place, Russell Place, Coram Place, Marchmont Place, Tavistock Mews, Colonnade, Little Guilford Street.

First Prize. Second Prize. Third Prize. Fourth Prize.

	s. d.	s. d.	s. d.	s. d.
For FUCHSIAS.....	7 6	5 0	2 6	1 0
For GERANIUMS.....	7 6	5 0	2 6	1 0
For ANNUALS.....	7 6	5 0	2 6	1 0

"2. Persons living in the Mews.

First Prize. Second Prize. Third Prize. Fourth Prize.

	s. d.	s. d.	s. d.	s. d.
For FUCHSIAS.....	7 6	5 0	2 6	1 0
For GERANIUMS.....	7 6	5 0	2 6	1 0
For ANNUALS.....	7 6	5 0	2 6	1 0

"3. Persons living elsewhere in the parish.

First Prize. Second Prize. Third Prize. Fourth Prize.

	s. d.	s. d.	s. d.	s. d.
For FUCHSIAS.....	7 6	5 0	2 6	1 0
For GERANIUMS.....	7 6	5 0	2 6	1 0
For ANNUALS.....	7 6	5 0	2 6	1 0

"2. Prizes for Children of Working Classes living in the Parish.

"1. Parochial, National, Sunday, and Infant Schools.

"(i.) Boys.

First Prize. Second Prize. Third Prize. Fourth Prize.

	s. d.	s. d.	s. d.	s. d.
For FUCHSIAS.....	5 0	3 6	2 6	1 0
For GERANIUMS.....	5 0	3 6	2 6	1 0
For ANNUALS.....	5 0	3 6	2 6	1 0

"(ii.) Girls.

First Prize. Second Prize. Third Prize. Fourth Prize.

	s. d.	s. d.	s. d.	s. d.
For FUCHSIAS.....	5 0	3 6	2 6	1 0
For GERANIUMS.....	5 0	3 6	2 6	1 0
For ANNUALS.....	5 0	3 6	2 6	1 0

No. 5.—VOL. I., NEW SERIES.

"2. Ragged Schools (Boys and Girls).

First Prize. Second Prize. Third Prize. Fourth Prize.

	s. d.	s. d.	s. d.	s. d.
For FUCHSIAS.....	5 0	2 6	1 0	1 0
For GERANIUMS.....	5 0	2 6	1 0	1 0
For ANNUALS.....	5 0	2 6	1 0	1 0

"3. Prizes for Domestic Servants.

First Prize. Second Prize. Third Prize. Fourth Prize.

	s. d.	s. d.	s. d.	s. d.
For ANY PLANTS.....	10 0	7 6	5 0	2 6

"The following are the rules to be observed:—

"1. Exhibitors must bring their names and addresses, with the name and number of the Plants they intend to exhibit, to the Parochial Vestry, between the hours of 10 and 12, on any morning of the week after April 22nd, and no person will be allowed to compete who has not given in his name on or before Saturday, May 4th.

"2. The Plants so registered must remain in the parish, and under the care of the Exhibitor, until the time of the Exhibition.

"3. Different members of a family are eligible to compete for the Prizes.

"4. The Fourth Prize in each class will be given to Plants not in bloom.

"5. The Plants are to be brought to the Schoolroom on the day of Exhibition, before 10 in the morning.

"6. No Gardener or Flower Dealer to be allowed to compete for the Prizes.

"7. Admission to Exhibitors free, to non-Exhibitors 6d. before 5 P.M., after that time 1d.

"N.B.—Exhibitors are advised to procure Plants which may be expected to be in bloom by the day of the Show.

"WALTER H. BOSANQUET, Esq., 5, Torrington Place, has kindly consented to give further information to intending Exhibitors, and is also willing to register Plants within the time specified above, every evening after 7.

"EMILIUS BAYLEY, Rector."

This Schedule was accompanied by a letter, from which, though marked "private," we shall venture to publish some extracts.

"On the chance of your taking an interest in such a thing, and of your deeming it worthy of favourable notice in your widely-read Journal, I enclose a programme of an intended Flower Show for the poor inhabitants of the parish of St. George's, Bloomsbury. If you do not consider it worthy of favourable notice, I hope you will not condemn it. The same kind of show was tried last year on a very small scale in the same parish. The Rev. S. H. Parkes, one of the Curates, and a most energetic man, started a flower show, or rather an exhibition of plants, confined to the inhabitants of one of the narrowest and most thickly populated streets in the parish. The only rule which had to be kept by exhibitors was that each must have had his plant in his possession for three weeks. Any kind of plant was allowed to be exhibited, and it was not necessary that they should be in blossom. It was felt that at the first attempt it would not do to be too strict.

"The result was entire success, and the number of plants exhibited by no means limited. The Russell Square gardener and an amateur acted as Judges on the occasion, and awarded the prizes, which were given away on the evening of the day of exhibition, by Mr. Bayley, the Rector.

"One of the great objects of the Show was to induce the really poor to take an interest in plants, which may add so much to the cheerfulness of their dwellings. Great difficulty was

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felt in awarding the prizes in consequence of the very large variety of plants exhibited, some of which were utterly unfitted to a London atmosphere. When a repetition of the experiment on a much larger scale was suggested this year, the difficulty which had been experienced was mentioned, and in consequence the competition this year is limited to Geraniums, Fuchsias, and Annuals. I feel that it is of no use encouraging the poor to cultivate plants which cannot repay them for their trouble, and which must cause them disappointment. By the rules you will see that each Exhibitor must on the day of the Show have had his plants in his possession rather less than seven weeks, and it is trusted that the great object in view—viz., the finding out, not who can buy the best plant, but who can take the best care of a plant, will be attained.

"At the same time the classes are so arranged that the inhabitants of the narrowest streets are not brought into competition with those who live in situations more favourable to the growth of plants.

"I think that the cultivation of plants is a very great civiliser, and I hope great good may come from the Show. I am in hopes that you may think the scheme worthy of favourable notice in an early Number.

"I say as well mention that although the programme says that only the fourth prize in each class will be given to plants out of blossom, there will be many more given in reality, because the people in the classes for whom the Show is meant, being without the means of procuring or taking care of many plants, could not insure having any in bloom at the particular time appointed for the Show, and much disappointment might be caused. Intending Exhibitors, it is known, regardless of the day fixed, would probably go and buy plants already in full glory or nearly so."

Now, if ever a step was taken in a right direction for benefiting the working classes, this is one. Nothing tends to raise a man, woman, or child above the temptations of sensual pleasures so effectually as a bright, cheerful, decorated home: and no home is so bright, cheerful, and winningly decorated, as that where flowers are fostered.

We have traversed the length and breadth of most parts of the British islands, and we record, as the result of our observations, that *life is longest, and the working classes are the most moral and well-to-do where a fondness for gardening prevails.*

This result of our experience is not extracted from rural districts only, for it is sustained by inquiries among the masters in the manufacturing districts. In Sheffield, Birmingham, Manchester, Coventry, Spitalfields, and elsewhere, those who cultivate florists' flowers, and those who love to search for wild flowers as members of the many botanical clubs that are so numerous among the weaving operatives, include scarcely any but men who are the most skilful and the most exemplary.

We think in all towns, whether manufacturing or commercial, the example set in Bloomsbury might be followed most advantageously; and in Bloomsbury we think they might have exhibitions for other flowers than those included in the present schedule—such flowers as the Auricula, Polyanthus, Pink, Antirrhinum, Pomponé Chrysanthemum, Cineraria, and Hyacinths, all of which may be successfully cultivated in pots and in city dwellings. Such shows would require to be held at three seasons of the year; thus the interest and care would be sustained throughout the twelvemonth. We think, also, that every exhibitor should pay a very small entrance-fee, to be carried to the funds of the exhibition.

One anecdote, and we have done.

We knew a village blacksmith, sober, industrious, and exemplary. Years passed, and we then found him an idle, sottish, ragged vagabond. We inquired of his brother how this ruinous change was caused, and the reply was this:—"When poor Fanny died, he married his present wife; and she never had home comfortable for him. Fanny kept things tidy—loved flowers, and had some for his button-hole on a Sunday—but she (his present wife), is no good, always gossiping, and pulled up poor Fanny's Geraniums to spite him."

CLIMBERS FOR A TRELLIS ON A NORTH-EAST ASPECT.

B. W. would be much obliged by the name or names of the handsomest and largest-flowered perennial Clematis, or other showy climber suited for a trellis, with north-east aspect. It must be perfectly hardy, as the situation is cold and exposed. Soil fine yellow loam. Locality near Ipswich. B. W. recollects many years ago seeing a splendid flower of the Clematis family and bought it, being assured it was quite hardy, but the first winter killed it; but B. W. must say it was placed in the immediate suburbs of London, where, from want of vigour, plants do not bear cold so well. Now would this answer (if you know the plant I refer to), for a climber in my small greenhouse where there is never a fire or any other covering but the glass to keep out the frost?

[For such a position out of doors we would use Clematis cœrulea, C. Hendersonii, C. flammula, C. florida bicolor; and such Roses as ruga and multiflora, and the hardier Noisettes. For the house grow Clematis Sibboldii, cœrulea grandiflora, Lonicera japonica, and Passiflora cœrulea, covering the latter with a mat or cloth in winter, as you use no fire heat.]

KEW GARDENS.

OF all the improvements in gardening for the last thirty years, none are so telling on the eyes which have seen the work of other days as the winter management of house plants, and the beauty and freshness of the plants themselves at the period of general potting in the spring. Kew is up to the highest mark in the records of this progress; yet the houses are not half large enough for the wintering of the vast collection.

When the new conservatories are finished and filled, as they will be before another winter, the gardeners at Kew may make larger specimens of their best plants; but they can hardly make them look more healthy than they are at present. The winter has hardly touched them, comparatively speaking. The annual deaths and casualties are not so heavy this spring as they have been in former seasons, yet the numbers of kinds of plants that are out there is not nearly matched in any establishment in the British dominions, nor anything like it. The situation is not at all favourable for holding out against frost, the water being constantly within a few inches of the surface in some parts of the grounds, and the whole surface not much above the level of the tide. It is the poor, hungry sand, and the gravelly bottom which save the exotic collections of Kew from severe seasons such as this last winter. Plants do not grow rank in such soil, and they ripen and harden before the winter, and if they are hardy anywhere it is in such soils.

I could see nothing to speak of among all their evergreens. No Rhododendron is hurt. The Sikkim Rhododendrons out in the lowest part of the grounds, but shaded and sheltered by some of the finest timber trees on the establishment, are safe as ponticums; and visitors to Kew at present must needs be told that the list of killed and wounded is made up by the writer from official documents, for neither they nor their informant could make the discovery in going over the grounds.

But it was the spring decoration in-doors that people from the country wanted me so much to report for years past; to whom I used to reply, "What can you expect that way in a botanic garden where nobody knows where to find room for the next plant he pots? Everything must be so crammed there that flowers are out of the question altogether." Indeed, such was my impression. I often wished myself to see their Acacias in flower; but then it occurred to me, that they may think I want only to criticise a certain deficiency. But this spring I had a very good excuse in the late frost, and so I went and found everything quite different from what I expected. Bulbs of all sorts forced for show as for a private conservatory; all sorts of forcing Geraniums, from Alba multiflora to Blanchefleur and Mrs. Johnson, which was new to me; Musk, Cherry Pie, and Violets, free as among country cottagers; Heaths, Eperisies, and Acacias as coming natural; magnificent Ferns, stove plants, and foliaged fineries all on the exhibition style of look and growth; Orchids done on the Kingston model at last, and no soul or body allowed now to go in and out in all weathers, which was the ruin of many plants besides the Orchids.

It is all very well and very wise of the Government to get young people down to Kew, and add to the poetry of their eyes and under-

standings; but it was neither wise nor well done from the beginning, to have allowed stove and other rare plants to be injured by a constant flow of visitors in and out the whole winter, giving an occasion to that enemy to have two strings to his crossbow. All that is altered now, and "private" on one of these doors does not mean you and I to have a private chat there, but that the place must be kept private for the safety of most valuable plants in winter and till their season's growth is done and ripened, then you can see them and welcome—and they will soon be worth seeing and something more. But my mission was about flowers, and began in the Heath-house, where, also, all the best Epacris were in bloom; where *Rhododendron javanicum* is now in full bloom, and many other fine things, from *Aphelaxis* to *Cytisus*, *Correas*, *Pultenaea*, and others, the host of March decoration. The Heaths in bloom, and the easiest Heaths for us and ours to have for March blooming were *mutabilis*, *pubescens* and *pubescens minor*, *persoluta*, *andromediflora*, *flava*, *triumphans*, *perspicua nana*, *colorans*, *urecolata*, *scabruscula*, *gracilis*, *viride* (vestita sort), *vernix*, *ovata*, *ramentacea*, just going out; *brunoides*, *lycopodioides*. Also, *Boronias* of sorts, and *microphylla* in fine bloom; *Polygalas*, ditto; *Chorozema varia*, and others; *Daviesia umbellata*; *Brachysema latifolia* and some others, and all in bloom gay as a show day.

No. 10, the grand show-house, and the best greenhouse in all England, where none is better managed, or is more gay in March and April, if not the whole year round. I was wholly surprised, as they say in Suffolk. All the best *Hyaecinth*s, early Tulips, and *Narcissuses*, which were recently before your eyes from Highgate and Pine Apple Place Nurseries, have been forced for this house. Everything that has a sweet leaf to it; all *Geraniums* that will force, and as many *Cinerarias* as would fill the tables of the Floral Committee with beauty, and their heads with dismay, are got up early for this decoration, and thus a man from London, with *THE JOURNAL OF HORTICULTURE* in one hand, and a guide-book for Kew in the other, may enjoy more flowers of an afternoon at this season of the year, than the Laird of Tullivolen, or the Duchess of Kippelbringham herself can do down in the provinces, to say nothing of all the *Cyclamens*, *Primula denticulata*, the varieties of *P. chinensis*, with *Dielytras*, *Deutzias*, *Daphne rubras*, *Lilacs* large as life, *Saxifraga ligulata*, with rhubarb-like sized leaves; *Solanum capicastrum*, in bushes with berries golden as the apples of *Hesperides*; *Rhododendron formosum* and *ciliatum*, *Ferugiums*, *Camellias*, *Roses*, and *Mignonette*. Then, in lesser numbers, are *Arctotis grandiflora*, blooming like a *Gazania pavonia* the year round—this is the source of an endless race of Hybrid Perpetual bloomers for in-doors and out; *Zieria macrophylla*, also a perpetual bloomer such as it is. Then most splendid tree Ferns, and the finest specimens of *Gleichenias* anywhere, in the rudest health, and in the largest tubs that must fall to their share. And then the *Acacias*—a sight when they are all in bloom, but this is only a small selection of them. *Acacia cecastrifolia* is one of the very best with large leaves, the stem size of a walking-stick, height under 5 feet, pot No. 16, and what more could stamp it for the smallest greenhouse? and some such consideration runs through the whole selection. *Acacia pentadena*, after *Drummondii*; *Acacia grandiflora*, after *grandis*, *suaveolens*, *Riceana*, *Drummondii*, *myrtifolia*, *sulcata*, *paradoxa*, *grandis*, *pulehiella*, *floribunda*, *grandiflora elegans*, *ovata*, *decipiens*, *premorsu*, *argyrophylla*, for its silvery, silky, shining leaves; *marginata*, after *cecastrifolia*. All these are as easy to keep as *Fuchsias*, and bloom, or may be bloomed, from the new year to April in a common greenhouse, and be out of doors from May to October. Some of them as standards, like standard *Roses*, would do admirably in the centre of flower-beds along the side of walks, or where there was no aim at composition-planting of beds.

The climbers in this large house are also well worth the attention of those who may be in want of such high decoration. They begin with the various *Passion-Flowers* and *Taconias*—as *Passiflora cœrulea*, *racemosa*, *Neumanni*, *Goutierii* after *alata*; *Taconia mollissima* and *pinnatifida*. *Tecoma jasminoides* and others; *Kennedyia monophylla*, *rubicunda*, and several others of that family; *Jasminum azoricum*; *Bignonia capreolata*; *Hardenbergia* of sorts, including *digitata* and *ovata alba*; *Mimosa marginata*, or the old *prostrata*; *Rhynchospermum jasminoides*, which can also be forced to come into bloom any time in the winter; *Zichya villosa* and others; *Lyonsia straminea*, looking like a large-leaved *Kennedyia*; *Holboellia latifolia*, related to *Stauntonia*; *Physolabium Sterlingii*, from New Holland, and looking like some *Hardenbergia*, are the principal kinds in that

house. And there is a fine-leaved climber in the large succulent-house called *Cissus quinatus*, which is valued entirely for the healthy looks of its large, green, shining leaves, and its free healthy growth. Here is a *Passion-Flower* which blooms most part of the year, and is called *hybrida floribunda*—a dark blue flower. Here, also, is *Hardenbergia digitata* in full bloom.

Here the succulents are as gorgeous as they are grotesque. *Littæa gemminiflora* is called *Agave* here. Two kinds of *Dasy-lirion glaucum* and *acrostichum* are two most beautiful plants for setting out in summer on terrace gardens; also *Agave*, or *Littæa striata*, and *gemminiflora* both equally good. *Gemminiflora* flowered at Kew last year, and, four or five years back, at Claremont; but the plants did not die, like some *aloes* do, after flowering.

In a forcing-house for cuttings and for supplying the show-house, lots of *Baron Hugel Geraniums* were in bloom as free as on a ribbon-border from the beginning of March. The *Baron* is the best of all *Scarlet Geraniums* for winter work; but one, like *Tom Thunab*, and called *Right's Queen*, is the best spring *Scarlet* brought to Covent Garden after being forced. The rafters were alive with *Tropæolum Lobbianum*—the best of all the winter bloomers, especially if it receive a few more degrees of heat than a common greenhouse. The plants were in No. 16-pots. *Fuchsias* for summer decoration; also large specimens of the *Unique Geranium*—the best in-door plant of the whole family in July, August, and September. Here, also, were shelves of *Brilliant* variegated *Geranium* in full bloom; *Calceolaria violacea*—a useful plant for spring use; *Cinerarias*, *Kalmias*, *Heliotropes*, and no end of *Flower of the Day*, and other bedding beauties; and a long, deep pit of twelve lights, just outside, was full of variegated *Geraniums* of sorts, still in store-pots for want of room.

My old favourite, *Lupageria rosea*, in the cold, or cool Fern-house, is now in a No. 1 or No. 2-pot, and growing and blooming as freely as ever. The Ferns make a forest in the rest of the house. Next to the propagating department—and there is a good day's work for bookmaking if one could spare the time—one thousand *Stachys lanata* for permanent bedding, all just rooted; *Arabis variegata* the same; *Frosted Silver Plants*; *Tropæolums*, *Gazanias*, and especially *splendens* in myriads; besides the *Verbenas*, and all the old requisites of that turn and style, with indications of a still higher strain.

What would you say to a hundred yards of *Cantauria candidissima* as the second row on a ribbon-border? Or to a full-length fourth line with a Fern variegated to vie with—what shall I say?—*Brilliant* in prime mood? The *candidissima* will do certainly when one can afford a ten-pound note for the hundred yards of it; but the variegated Fern is yet at so many half-guineas a-piece according to the size—the smallest size for the smallest piece of gold in circulation; but the plant seeds as free as poppies, and every seedling comes variegated, and will soon be as cheap as *Alma* for the ribbon-borders. It is the old *Pteris cretica* in a new dress from Java. Mr. Smith, who knows them better than any man living, says *cretica* is found in all parts of the world where Ferns grow; but this form of it is found only in Java. It grows 15 inches high, is of a quick, spreading habit, and sturdy growth, makes the finest exhibition plant of all the variegated kinds, is in all the London nurseries, and Mr. Linden is going to send it over for the ribbon-borders for the summer months. I am to prove it, and let you know: and the Floral Committee had a basketful of it from Mr. Veitch, and one plant from Mr. Bull the same day; and there is no mistake about it, for it took a first-rate prize, and no voice or word "to the contrary."

Camellia-horse in forcing for wood and early buds for next year. The *Sikkim Rhododendron-house* the same, but kept much cooler and more moist than the *Camellias*. Here, then, is an answer to "AN OLD SUBSCRIBER" or two, who have been wishing to know how to do the *Sikkims*. The plants there are glorious in their looks and luxuriance. They are kept as cool as *camellias* during the winter; and in the spring, when they move naturally into growth, they are very gently encouraged to grow freely in a moist atmosphere, and little sun, with a rise of a few degrees of heat. The turning-point in their management seems just the same as that for the *Nepaul great Rhododendron trees*—to see that all stimulus is avoided as soon as their growth is finished, lest they start a second growth, and thus hinder them from setting their flower-buds; also to take special notice that the sun does not strike heavily on their new leaves till they are quite ripe—or say to the end of September, or nearly so. When

the frost is over they are turned out doors, and the pots are half plunged in a sheltered piece of ground, which is shaded by trees from the mid-day sun, or where the sun can reach them only in the mornings and evenings, and their strong leathery leaves are supposed to need a vast deal of moisture from some damp mulching all over the ground among the pots, and round about where they stand during the whole summer.

The bulbous *Tropæolums* had a new device for training their slender threads on—thus: When the bulbs are potted, a strong stake is placed in the centre of the pot, and firméd there with copper wire—first across the top of the pot, and fastened to a wire round the rim, and secondly by another run across the first wire, the two forming an X in the centre, and fixing the stake at the cross. The stake is gimlet-bored all the way up; and twigs of old birch brooms are stuck into the holes to form a Christmas-tree-like support, or a dried spruce fir without leaves. There is even a leading-like shoot out of the top hole on the stake, and the whole is firm from the very first. The diameter at the surface of the pot is from 16 inches to 20 inches.

In the botanical propagating-house were the grandest sights. It was there that *Peris eretica albo lineata* was first proved from seeds, that *Cinchona Calisaya* will root slowly from cuttings and layers, that the largest Pea or Bean in the world is 5 inches in diameter, that it opens in two parts like a scarlet runner, and that three young sprouts for trees come from the same germ within it: that is the size and shape of the seeds of *Mora excelsa*, the most majestic tree of Guiana, according to Sir R. Schomburgk, who first discovered it, and says the timber is as good as that of our best oak. Glasses for growing Ferns and Finellas under are there on a new and economical plan—four large squares of glass set in a strong frame as for the bottom of a hand-light, and a moveable roof of two panes set at different angles like the roof of a house, and two small pieces of glass for the gables. The roof and gables come off like the top of a hand-light, but the bottom never if it could be helped, so as not to let the softest breeze or touch come nigh the great variety of *Hymenophyllums* and their allies which delight in such quiet retirement. But why not have the like and the same care for our cuttings? They, too, or some of them, dislike popping off and on of tumbler glasses, as much as film ferns anyhow.

In one of the tropical stores was a fine plant of *Meyenia erecta* in bloom, and there is a white-flowering kind of it at Kew; *Gardenia citriodora*, a fine thing; *Howardia caracacensis*, with brilliant pinkish bracts, as conspicuous that way as the white bracts of *Muscenda frondosa* itself; *Franciscia macrantha*, with very large flowers and leaves; *Ixoras*; *Gesneras*, of which *cinnabarina* is the queen; *Thunbergia Harrisii*, flowering free as gloxinias, and with the same shaped flower of a light blue colour—a famous stove climber for winter-flowering either in large pots or out in a free border; *Rixia glandulosa*, a fine thing; and the old *Plumbago rosea* done to a T at last, and blooming from November to March; *Linum tigrinum*, blooming as freely the whole winter; *Clerodendron splendens* ditto.

But one of the finest new winter bloomers is an *Acanthid* from the unfortunate Barter who perished in the late Niger expedition. This is called *Stephanophysum Baikiei*, after Capt. Baikie the Commander. The flower is of the shape and colour of *Thyracanthus rutilans*, only brighter, and the spikes of blooms are upright. The plant also is of a good habit, and is invaluable in large country collections. Another useful plant of the same class is *Dipteracanthus Kerhishi* from Rio, with more pink in it than in *stephanophysum*; *Allamanda nerifolia* in bloom as usual; *Callysandra hæmocephala*, a bottle-brush-looking flower of the Inga group; *Gleisomeria nitida*; and a very curious little *Aristolochia flavoites*, with a bulbous-like stem, producing a host of flowers all round the surface of the pot; the grand *Brownea coccinea* in full bloom, large heads of drooping crimson scarlet flowers of vivid lustre. To make out the circle of economies, they grow their own coffee, tea, and tobacco.

In the first Orchid-house was a spotted or variegated something, like a little Mexican maxillaria, with round white dots all over the leaves. It was found by Mr. Ross, of *Cinchona* celebrity, in the forests of Guauquil—the only one of the kind he had seen among thousands of common *Oncidiums*, which made the forest blaze as our commons do when the Gorse is in bloom. The Indian Orchids are in the first house, and coming away in grand style, with the stronger *Oncidiums* at the coldest end coming into bloom freely as in that forest. The next is the *Victoria*-house, in which victory is won already in fine-leaved and

variegated plants. The leaves of *Cyanophyllum magnificum* are 35 inches long and 16 inches across. *Eucharis grandiflora*, in a No. 8-pot, with six or seven bloom-spikes—pitchers planted out in peat-borders, and rambling over everything, and they get them from seeds to pitcher from the first; *Æschynanthus* of sorts, hanging over the Lily-lake in beautiful ringlets; and *Colocasia edulis variegata*, the very best of all good things of that stamp.

The last house I went through was the alpine Orchid-house, or where the Mexican and other hardier kinds are kept. Here, too, was a fine display of various flowers—as *Begonias*, *Gesneras*, *Bletias*, *Dendrobiums*, *Lycastes*, *Cypripediums*, *Epidendrums*, and *Gloriosa superba*, all in bloom. *Gesnera cinnabarina*, in a long vista row in this house was the richest colour I ever set my eye on; and there was a climber on one of the rafters which was new to me—a *Littonia modesta*, with the exact habit of a twining bonarea, and the looks of a gloriosa, with pale yellow drooping flowers. In another store was a new way of doing *Platycerium grande*. It was tied to a log which was hollow in the centre, and through a hole the roots got inside, the hollow being filled like a garden-pot, and the plant grew amazingly, and preserved its barren leaves or fronds in the most healthy state, which it never does in pots or any way where it touches a damp surface. But the way to understand this is to suppose a pair of new top boots to be filled with the right compost for that Fern, to have holes at heel and toe for drainage, to pin a young *Platycerium* against the top part of the boot outside, and to make some slits over the calf of the boot to let in the roots to the mould, to water from the top of the boot, and let no water rest on the folds of the fronde viridi.

D. BEATON.

VINERY AND CUCUMBER-HOUSE COMBINED.

I HAVE a vinery heated with hot water (four-inch pipes flow and return), and being very anxious to build a Cucumber-house—say 12 feet long by 6 feet wide, could I not attach it to the end of my vinery, and by taking off the syphon and air-pipe put another 6 feet of flow and return pipe on, so carry it through a tank to be placed in the Cucumber-house underneath the bed where the Cucumbers would be cultivated? By this plan I should save the expense of a boiler, and only use one fire instead of two.—B. Z. ARMISTRO. G.

[Unless your vinery is very large, a small boiler will do easily all you propose; but then the heat must all pass through the vinery before reaching the Cucumber-house, so that you cannot heat the latter without heating the former. Perhaps you do not mind this, and will prefer heating them simultaneously. You could also, in the case of early Cucumbers, have more heat there than in the vinery by giving more air in the latter. We should carry the pipes all the length of the Cucumber-house with or without the tank. We find no fault with the latter, only the expense. The pipes and plenty of them, according to the season of the year, would give us all that we should require; but by all means have a tank if you prefer it as a hobby. If you had your Cucumber-house on the other side you might easily heat it independently of the vinery from the same boiler.]

A GLIMPSE OF WOODHALL.

THIS celebrated place, the country residence of Abel Smith, Esq., is about four miles from Hertford. I visited it on the 8th of February, the same day as that on which I called at the Hertford Nurseries; and though it was a very unsuitable time of the year to visit a fine garden and I took no notes, some impressions and recollections may be worth recording.

However the traveller goes from Hertford to Woodhall, he will pass through a varied, picturesque, and well-cultivated part of the country. The park itself is very large, much varied in outline, and well supplied, perhaps in places too densely supplied, with timber. When trees for a large space stand thickly together, we are more impressed with the ideas connected with the utility of a forest than with the more refined associations connected with massive groups in a park comparatively open. It is always, however, an easy matter to cut down and thus admit, not only of diversified light and shade, but of great variety in outline. Large breadths of Bracken Fern add to the picturesque beauty.

The mansion, so far as I recollect, is more massive and com-

modions than ornamental in its architecture. It stands on the edge of an elevated platform, the carriage entrance being on the north-east side, with a small lawn in front of it. On this lawn fine plants of *Pinus insignis* seemed quite killed; *Araucarias* had suffered severely; *Deodars* were brown and white, but would recover; and such plants as *Cupressus funebris* and *Lambertiana*, were killed outright. There was a pretty little thriving plant of the *Abies elegans*, with which I was unacquainted, quite as hardy as the common spruce, and seeming to have a fine habit of growth. Common Laurels and Portugal Laurels had suffered severely, and *Laurustinus* were next to killed. A slightly raised walk bounded this lawn; and on one side at least it passed through a rough shrubbery, where Mr. Beale intended forming a rockery and fernery.

The wood in the park in front of this lawn had been thinned with great propriety, so as to bring a number of fine Cedars about forty years of age within view of the windows of the house. Just as I stated some time ago in the case of Gorhambury, a fine effect would be produced by an avenue of *Deodars* between this lawn and the kitchen garden.

On what I may call the east side of the mansion is a flower garden somewhat sunk, and, of course, in February having little attraction, backed by a small conservatory, the front facing that end of the mansion. The roof was a perfect picture of long yellow racemes of a fine glaucous-leaved variety of *Acacia pubescens*. The two beds were supplied with fine plants of *Camellias*, *Oranges*, &c., grown in pots, but plunged so as to conceal the pots, and enable the visitor to look down chiefly on the flowers instead of looking up to them. Some fine *Acacias* and creepers were growing against the pillars; and the front shelf was very gay with bulbs, *Cinerarias*, *Epacris*, &c. Nicely, however, as this conservatory looked, it seemed to me to detract, even by its smallness, from the massive grandeur of the mansion; and having no direct connection with it, the interest was to a great extent lessened, as ladies could get to it only on fine days. No position could be more appropriate for a conservatory worthy of the mansion and of the demesne; and by doing away with the flower garden, the new conservatory could be connected with the mansion by a wide promenade all covered with glass and with plants on each side. The conservatory, as a whole, would then resemble the letter T, and if deemed desirable a small artistic parterre might be placed on each side of the long leg of the T. In these days of cheap glass, such structures connected with a mansion must be a great source alike of health and rational enjoyment. Those possessed of the means might thus, to a great extent, enjoy a Torquay, a Naples, or a Madeira, not far from their parlour fireplace.

The fine panoramic views from the south-west side of the mansion will, however, chiefly attract the attention of the visitor. The ground for a great distance slopes somewhat gradually through an open park to the river Beane, and then rises seemingly more variedly as far as the eye can reach. The front of the house has a wide grass terrace bounded by a gravel walk and a terrace wall. The terrace at my visit had some clumps of low evergreens, &c., but it was to be entirely remodelled. Unless when close to the lower windows, the height of the terrace wall intercepted the view of the silver waters of the Beane. That wall was to be removed, that the eye of a person sitting in any part of the lower rooms could take in the whole scene. In front of that wall in part of the park a new geometrical flower garden is to be formed, with fountains and other accompaniments, and then, lovely as the scene now is, it will be lovelier still. I shall count on the pleasure of seeing it some June or July.

Few can gaze on such a demesne of a hundred thousand acres and say literally "It is mine;" and yet every one permitted to look upon such scenes, and possessing the large-heartedness that prevents the intrusion of a spark of envy or discontent, may make all that beauty his own, and realise as much pleasure in contemplating it as the benevolent proprietor himself. I have several times in these pages given utterance to these ideas, though with little of the force and beauty presented in the following extract from the last work of the great statesman and writer of Hertfordshire, and which I commend to the attention of all those especially who visit places and gardens that they think much finer than their own.

"The grey cripple and the bright-haired child often paused and gazed upon the demesnes and homes of owners whose lots were cast in such pleasant places. But there was no grudging envy in their gaze, perhaps because their life was too remote

from such grand belongings, and, therefore, they could enjoy and possess every banquet of the eye. For at least the beauty of what we see is ours for the moment, on the simple condition that we do not covet the thing which gives to our eye that beauty. As the measureless sky, and the unnumbered stars, are equally granted to king and beggars, and in our wildest ambition we do not sigh for a monopoly of the empyrean, or the fee simple of the planets; so the earth, too, with all its fenced gardens, and embattled walls, all its landmarks of stern property and churlish ownership, is ours too, by right of eye—ours to gaze on the fair possessions with such delight as the eye can give, grudging to the unseen owner his other, and, it may be, more troubled rights, as little as we grudge an astral proprietor his acres of light in Capricorn. Benign is the law which saith, 'Thou shalt not covet.'"—R. FISU.

(To be continued.)

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.—A Meeting of this Committee was held on Tuesday last, Rev. Joshua Dix in the chair. The room was liberally decorated with a profusion of fine plants and flowers. Among the most conspicuous were a table filled with very fine specimens of Indian *Azaleas*, another with a splendid collection of *Anriculas* and forced *Roses*, and a third with *Pelargoniums* from Mr. Charles Turner, of Slough, for which he received three Special Certificates and the thanks of the Committee. Messrs. Cutbush, of Highgate, sent a very nice collection of *Hyacinths* in pots, to which a Special Certificate was awarded; and a letter of thanks was voted to Mr. Young, West Hill House, Highgate, for a collection of bedding *Tulips* in pots.

Mr. Turner, of Slough, sent a seedling *Scarlet Geranium* called *Herald of Spring*—a large flower with good truss, and of a fine orange cerise colour, to which a First-class Certificate was awarded. The same gentleman also sent *Queen of Scarlets*, a dwarf variety, *Fairholmsland*, a rosy white and pretty, and *Prince of Hesse*, a fine large flower of a salmon colour, shading off to the edges. These were more or less admired and requested to be seen again. Clara, a seedling *Scarlet Geranium*, of fine shape, received a Label of Commendation. The leaf is finely marked with a dark disk and a darker zone, yellowish-green margin, with an orange zone when young, and with large, deep crimson scarlet flowers.

Mr. Bull, of Chelsea, sent a hardy *Heath* with a white flower, which was called *Erica mediterranea alba*, but which had no resemblance to *mediterranea* in habit, being a dwarf dense plant like *herbacea* in its growth. Also *Thrinax elegans*, a pretty little stove Palm which has been some years in cultivation, and which is the *Thrinax radiata* of Loddiges and of Martius. Mr. Bull also sent a collection of *Variegated Begonias*, and a box of *Agathaea celestis*.

A box of flowers of *Bougainvillea speciosa* came from Mr. Daniel, of Henley-on-Thames, and were certainly the admired of all admirers. Dr. Lindley has shown that this is not, as was formerly supposed, the *Bougainvillea spectabilis* of Lamarek, but a distinct species altogether, and which he has named *speciosa*. Dried specimens of both species were exhibited by Dr. Lindley, and the difference was at once apparent. A Special Certificate was awarded. Messrs. Lee, of Hammersmith, exhibited a lovely Fern called *Lomaria cycadifolia*, which produces a globular stem or stipes like a *Cycas*. It was awarded a First-class Certificate, as were also two other beautiful Ferns—*Lomaria fluviatilis*, and *Polystichum vestitum*, var. *venustum*.

Mr. W. Wilson Saunders, sent *Prenanthes pinnata*, and *Prenanthes arborea*, the latter a pretty-foliaged plant, which was awarded a Label of Commendation. The same gentleman also sent a pretty, delicate-stemmed, rambling, small-leaved species of *Asparagus*, and a pretty plant called *Erodium guttatum* with purple flower, and a dark spot at the base of each of the petals. The latter received a Label of Commendation.

Mr. Veitch, of the Royal Exotic Nursery, Chelsea, sent a free-blooming, dwarf-growing *Pultenea*, called *Gilesii*, and *Erica imperatrix*, the latter a seedling of Mr. Storey's. From the same nursery came a beautiful-foliaged new plant called *Adelaster albinus*, an acanthaceous-looking plant, related to *Justicia*, with long, ovate-lanceolate velvety leaves, of a very dark green tinged with purple, and with pure white veins. It was awarded a Label of Commendation, but deserved a higher award.

Among other articles exhibited, we observed a large basketful

of very fine *Mushrooms* grown by Mr. Young, gardener to R. Barclay, Esq., West Hill House, Highgate, produced from Cutbush's Mill-rack spawn.

EFFECTS OF LAST WINTER UPON PLANTS IN VARIOUS PARTS OF ENGLAND.

(Continued from page 60.)

I HAVE for many years remarked the effects of our severe winters, and have seldom or never known them to extend with a like result over the whole of England. One severe season has been remarkable for killing the evergreens in the neighbourhood of London—the warm sheltered valley of the Thames, and in Surrey; leaving unscathed those in the home counties to the north and east of London. Another severe winter has passed over these districts with effects exactly the reverse. As a general rule, the hills in Sussex and in the south of England rarely have their evergreens injured by the frosts of midwinter; but have suffered, if at all, by the dry cold winds of March. The Christmas frost of 1860 seems to have been nearly equally severe over a very large tract of country, including the northern, eastern, north-western, and home counties nearly as far south as the Thames valley, over which the frost does not seem to have passed with equal severity; for while at Chiswick the lowest temperature was 7°, at only a few miles to the north-east, as at Ware, it was —1°.

The destruction of what we fondly hoped were acclimatised coniferous trees and shrubs over this large district is enormous—quite beyond all precedent; for never in gardening annals were so many choice *quasi* hardy trees and shrubs to be seen in our gardens and pleasure-grounds as in the autumn of 1860. In the north, at Darlington, in the nursery of Mr. Harrison, *Deodars* and *Arancarias* are all completely killed down; and all his *Roses*, even the stocks of the *Dog Rose* planted in 1859, with live buds in them, are also killed. Common *Hollies*, and *Portugal Laurels* even, are leafless and brown. It is also reported that the large stocks of *Arancarias* and *Deodars* in the Liverpool nurseries, more, perhaps, than in the whole kingdom, are all killed. In the large district I have above alluded to, the *Cypress* tribe seems to have suffered greatly. Large and small trees alike of *Cupressus macrocarpa*, *C. Goveniana*, *C. Knightii*, *C. funebris*, *C. majestica*, *C. sempervirens* with its varieties, *C. torulosa*, *C. Uldema*, *C. Benthiana*—in short, all but *C. Lawsoniana* and *C. nutkaensis* (*Thuopsis borealis*), are among the things that were and never more to be considered hardy—a term of late years so often misapplied to new trees and shrubs. One cannot but lament this: for *Cupressus macrocarpa*, and two or three species besides, bid fair to be such permanent and beautiful evergreen and ever-pleasing ornaments to our gardens.

In great contrast to the *Cypress* family are the *Arbor Vitæ* (*Biotas* and *Thujas*). The Chinese *Arbor Vitæ* (*Biotas*), have borne the temperature of the eastern and home counties bravely; and that very pretty, small-leaved, bright green variety called *Biota compacta* better, perhaps, than any other; for in the species, and even with *B. aurea*, some browned shoots are to be found. We need not feel surprised at this, for the Chinese *Arbor Vitæ* is remarkable for its hardiness: witness its growing so freely about Paris (a death-dealing place to evergreens), more particularly in *Père la Chaise*, where there are thousands of trees of all sizes. *Thuja gigantea* and *T. Lobbii* seem to have stood the winter perfectly unscathed, and seem as if they would partly compensate for the great losses we have sustained among *Cypresses*, two only of which, if we make *Thuopsis* a *Cypress*, are to be depended upon—viz., *C. Lawsoniana* and *C. nutkaensis*.

Among the true *Pines* it is much to be regretted that the beautiful *Pinus insignis* is in most places quite killed, or so injured as to cease to be ornamental. All, or nearly all, of the Mexican *Pines* so largely introduced of late seem totally destroyed. The *Silver Firs*, as well as all the species and varieties of the *Spruce Fir*, seem in all situations entirely to have escaped injury, which is a great comfort to the lover of coniferous trees, for among them are the most beautiful of trees. The *Junipers*, with some few exceptions, seem to have stood the winter well. The exceptions, so far as I have seen, are *J. Bedfordiana*, *J. gossainthiana*, and *J. macrocarpa*. *Libocedrus chilensis* seems to be totally destroyed. The *Yews* of all kinds appear scarcely to have a leaf injured. *Wellingtonia* in most places has escaped without injury. I have, however, observed that in some exposed

situations a great number of its young shoots are brown and dead, and are now falling off; still, its leading shoots are safe, so that but little disfigurement will take place.

One of the most remarkable effects of the late winter is the destruction in the district I have mentioned of the evergreen Oaks (*Ilex*). Nearly all the trees I have seen, whether old or young, seem totally destroyed. At Hunsdon House, near Ware, Herts, large trees upwards of a century old are killed; their branches and stems not slightly browned as they were last year, but perfectly sear. The *Lucombe Oaks* are also, many of them, too far gone to recover. Trees of the narrow-leaved sort, called the new *Lucombe Oak*, seem to be quite dead, their stems and branches as sear as those of the *Ilex*.

As to common *Laurels*, the pride of our gardens, *Laurustinus*, *Bays*, and a host of other evergreens, they are among things of the past. I may, however, mention that at Epping, lying very high, and the soil a heavy retentive clay, the evergreens of all kinds are nearly unimpaired.—*QUERCUS*.

HINTS ON MELON GROWING.

THE past season of 1860 to a goodly number of Melon growers proved a perverse one, and it certainly told as much relative to this species of fruit, as about any other that was grown, driving not a few to their wit's end.

The fruit's seemingly natural propensities to crack were a regular poser to even some of our best growers, although brought on in a great measure by themselves.

That it was an excessively trying season to every grower there is not a doubt, and there are but very few that can remember such a season before. It seemed a general complaint, for go where you would amongst the gardening community one question was sure to be asked—"How are your Melons? are they cracked?" and I was told by several that theirs cracked long before ripe. Why was it?

Various were the reasons assigned for their cracking: but the majority that I came in contact with attributed it to want of sun. Was this the whole and sole cause of their cracking? No. Although it must be admitted that there was an unusually limited number of sunny days in comparison with the corresponding summer months of years upon years gone by, and, naturally, if there is a deficiency of sun you are told there must be a deficiency of power to abstract that excess of moisture the plants were continually endeavouring to eject, or that ought to evaporate from them. It might be justly termed a trial year for Melon growers, and leaving only the one road open for those that then failed, which is to try again.

But, generally speaking, the Melon plants that came under my notice suffered more when about three-parts ripe or grown, from excess of moisture at the roots and want of sufficient air than from want of sun. Excess of moisture at the roots is far too often caused by inefficient drainage, which is of the most imperative necessity for the successful culture of this well-known fruit. Inefficient drainage also takes the command of the beds entirely from any one's hands. Inefficient drainage is also in direct opposition to obtaining that great desideratum, a rich flavour, which is so required, and which they must have, or whoever is the grower will fall far short of ranking amongst the best growers of his day.

Much more might be said on the evils that accrue from non-efficient drainage of the plants. See the havoc the over-abundant supply of sap causes at the setting and first swelling of the fruits, for these swell to excess. Yet, eventually, the inefficient drainage destroys a great portion of the principal fibrous rootlets or thread-like feeders of the roots of the plants, causing the fruits to turn off one after another, leaving in the end perhaps from three to six inferior fruits in a two-light frame, instead of the same number three times told, and those which remain are scarcely worthy of the place generally allotted them when placed on the dessert table.

There are many that are impressed with the idea that the Melon is of the most easy culture; but that idea is erroneous, for of all the fruits that are cultivated on this isle few require more care and attention than this does, and few repay better than this for the care and attention they receive.

Some will fail this year, and will continue to do so, for are they not planted in many instances (although not by all growers), without considering for a moment the natural habits of the plants? In some cases they are grown far too luxuriantly to

produce many fruits; while in other instances through mismanagement, they form a feast for the red spider and other insects before any of the fruit is ripened at all.

The most essential points to be borne in mind for good Melon growing are these:—

First, the imperative necessity for thorough drainage for the plants. Secondly, the greatest care and attention to giving them constant and regular ventilation.

For the drainage, broken potsherds might be used rather freely in a similar manner as for pot plants, to be mixed with the compost for growing them in.

The compost used here is a rich turfy loam chopped to about the size of walnuts, with about one-third of old mushroom-bed and leaf mould combined. This the plants fruit most freely in. They have never more than from 1 foot to 15 inches deep of this compost to grow in, which I far prefer to a greater depth—that is, on dung-beds. Here they are grown on them with the greatest success in a most simple manner, outweighing all that I have ever grown, either in a house or hot-water pits.—A. J. ASHMAN.

(To be continued.)

CULTURE OF TRUFFLES.

WITHOUT being able to name either particular persons or particular places, where and by whom the experiment has been tried, I think that certainly not less than seven or eight different persons have, all of them, informed us they could never succeed in raising the Truffle artificially, although every pains was taken in procuring the soil from the very identical spots where the Truffle is obtained in tolerable abundance—in those parts of Hampshire about Cheriton and Alresford; and we also know that in those particular spots where they have been plentiful one year, they may be scarce or altogether absent in another or the following season.—T. TAYLOR, *Covent Garden*.

In answer to your inquiry about Truffles, I know that they are in great request in some parts of France, but little is known about their propagation. Having the “*Bon Jardinier*,” I translate the following:—“*TRUFFLES (Lycoperdon tuber)*, an extremely singular vegetable, having neither stems, leaves, nor roots; consisting simply of a kind of dark or white tuber, according to the variety, always hidden under ground. Nothing is known of its propagation. They are found chiefly in the autumn, especially at the roots of the oak. Their cultivation has been tried, but without any real success.” All I can say to your “*OLD SUBSCRIBER*” is that it is difficult to throw a light on a matter of thing which delights to be in the dark.—E. PERSAC, *Exeter*.

A CORRESPONDENT has obligingly forwarded us the following cutting from a newspaper, but without either date or name:—

“Next to wine and corn, I believe the crop of Truffles stands highest in the estimation of Parisians; and it is not surprising that tubercles, which sometimes cost 16s. to 20s. a-pound, as these did last year, should be regarded with great interest. Fashion or taste fixes the value, and such prices give importance to the commodity in a commercial point of view. These dainty fungi are now coming to market, and are fetching 10 to 20 francs the kilogramme, but it is expected that the lower price will reach 15 francs by Christmas. Périgord, Comtat, Provence, and Dauphiny produce the finest Truffles. The demand for them increases rapidly, and, in spite of the cultivation which has been carried on to a great extent in some parts, the supply is insufficient. An important discovery has, however, been made. Africa, whence Pliny, Apicius, and Lucullus imported Truffles at a great cost, produces in some parts large quantities of the black specimen of a delicate texture and delicious aroma. A large house of business in the Drôme, which has been engaged in the trade for a century, has lately extended its operations to Algeria, and a considerable quantity of new supplies has already been received from the colony in question. A curious fact has been brought to light by this adventure in search of seasoning. In France Truffles are almost always found near oaks and hornbeams, but in Africa they seem to prefer the neighbourhood of pines and cedars, and are often found far away from any tree whatever. This seems to put an end to the theory of the Truffle fly picking the roots of the trees, and thereby causing

the growth of the tubercle; or, in the words of a correspondent, this insect and his exploits are the fruit of imagination. If this be true, it is very hard upon those who have been taught to watch and calculate the effect of the seasons on this interesting gastronomic purveyor. As an instance of the faith that is placed in the fly theory, I may quote what was stated the other day in the *Périgord*, not *paté*, but newspaper. A writer in the journal which has such an appetising word in its title says:—“When the ground is very hard the flies cannot descend to the roots of the trees; but this season, as the months of July and August were sufficiently moist, the crop of Truffles is likely to be large.” If the insects are to be given up, the theory that a wet July and August bring a good crop may still be maintained.

“The consumption of oysters here is immense. If any disease should seize that interesting family, we shall certainly all be carried off; and scientific men are doing their best to increase the danger, by converting the coasts of France, both in the Channel or in the Mediterranean, into huge colonies of natives. Messrs. Cloquet and Coste have supplied us of late with much information relative to the propagation of these fishes, and the latter gentleman has been furnished with a steamer called the *Chamois*, by the Emperor, for the purpose of picking them up and planting them in the most advantageous manner. At St. Marc, Côtes du Nord, the success of the new beds has been very great. Three hundred fascines were moored to the banks in June 1859, in order to afford shelter to the young oysters; and three of these, being taken up last year, were found to contain the enormous quantity of nearly 20,000, measuring from 1 inch to 2 inches in diameter. The fascines thus loaded were exposed to public view at Bric and Portrieux for several days. It is said that the beds in the bay of St. Briac have obtained such celebrity abroad that M. Van Beneden of Louvain, M. Eschricht of Copenhagen, and many other foreign scientific men, have visited the place in order to study the system and apply it in their own countries. The next step undertaken by M. Coste was the *plantation* of oysters above the low sea line, in order, to quote his words, to see if they could not be *grown, protected, and gathered* with the same facility as the *peaches in our gardens*. He published his views upon this subject in 1855, and has since been busily employed in carrying them out. The basin of Arcachon has been converted into a vast oyster park: 112 capitalists and sailors are associated in the business; and 200 acres, which are covered by the sea at high water, are now producing large quantities of fish. The Government, in order to assist the undertaking, has established two model oyster farms on the spot, where experiments are made in the necessary operations of *sowing and gathering*. The beds are arranged with fascines, kept in their places by bricks, cement, and planks in geometrical order, and each part is literally covered with oysters of every age, from the mere infant to the bearded old grandfather. A single tile has been found to support a thousand shells, and M. Coste exhibited some very remarkable specimens the other day at the meeting of the Academy of Sciences. Within two years parks extending along the coast for about four leagues have been formed in the Isle of Ré, opposite Rochelle. Fifteen hundred of these are now in full activity, and 2000 more are being planted. The oysters are said to average 600 to the square metre; and as there are 630,000 mètres under cultivation, the crop is now somewhere about 378,000,000, and is valued at about seven millions of francs. It appears that all the *seed* oysters have not been obtained from the ocean, for about 500,000 were taken by the Chamois last year on the English coast; these were deposited at Thau and Toulon.”

KEENS' SEEDLING STRAWBERRY BLOOMS GOING BLIND.

At the beginning of August last year I replanted a small piece of ground with Strawberries (Keens' Seedling). The runners were the very first from the old plants, and laid into pots, and I was particularly careful to take them from plants which had borne fruit. The ground was well mulched with stable-dung before gathering the previous crop, and the young plants were well dressed with fowls'-dung laid between the rows, which they seemed to luxuriate in. To my great vexation they nearly all appear to be blind, and are beginning to put forth runners. Can you inform me the reason why? I am the more surprised, as on the same piece of land there are some British Queens which were put in rather later, and which are

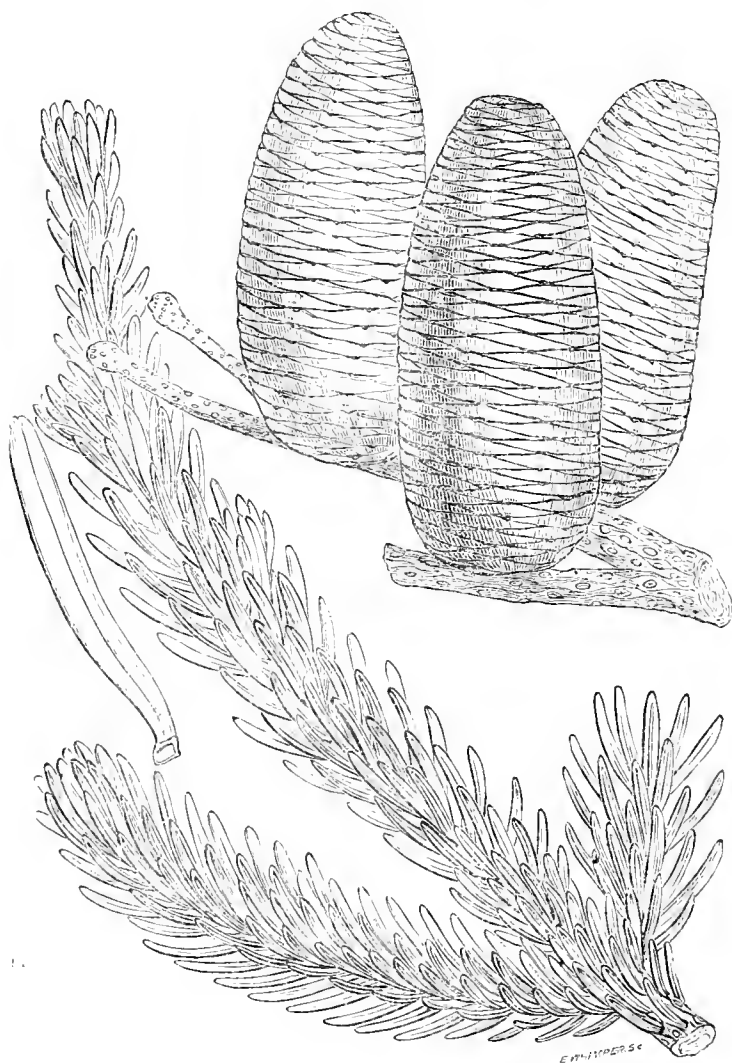
nearly all trussing up. Will the Keens' Seedling bear next year if I let them remain? I am inclined to think they will not, although some of my neighbours say they will.—C. H. C.

[We never met with such a case of Keens' Seedling. Without any selection whatever, we hardly ever have a barren plant. We can ascribe it to nothing but the extra care and the extra manuring you have given them, which have kept the plants in

vigorous luxuriance when they ought to be ripening their buds. The late planting seems to have done this for the Queens in spite of you. We should leave the Keens' alone, and if you remove the runners, and give all the sunlight to the plants possible, we have no doubt you will have a wonderful crop next year. Under your treatment the wet and dull autumn was much against you.]

NEW PLANTS FROM JAPAN.

PICEA VEITCHI—Veitch' Silver Fir.



shoots are hairy. The cones are from 2½ inches to 2½ inches long, and about 1 inch in diameter and are like those of a small silver fir.

INSECT RAVAGERS OF THE ROSE.—No. 1.

THE gardener has about twelve insect marauders from whose inroads he has to protect his Roses. Those which attack the flowers are most fatal to his decorative intentions, but those which attack the leaves are not slightly disfiguring and injurious. We will commence with three of these.

THE LEAF-CUTTER BEE (*Apis centuncularis* of Linnaeus and Kirby, *Magachile centuncularis* of Latreille.) Every cultivator of the Rose must have noticed semicircular cuts made in the edge of its leaves with as much accuracy as if done by a mathematical instrument. These segmental cuts are the work of the Leaf-cutter Bee and made by its mandibles. Messrs. Kirby and Spence have described the proceeding as follows:—

"The mother bee first excavates a cylindrical hole 8 inches or 10 inches long, in a horizontal direction, either in the ground or in the trunk of a rotten willow tree, or occasionally in other decaying wood. Latreille says the nest is also made in the earth. This cavity she fills with six or seven cells wholly composed of portions of leaf, of the shape of a thimble, the convex end of one closely fitting into the open end of another. Her first process is to form the exterior coating, which is composed of three or four pieces of larger dimensions than the rest, and of an oval form. The second coating is formed of portions of equal size, narrow at one end but gradually widening towards the other, where the width equals half the length. One side of these pieces is the serrate margin of the leaf from which it was taken, which, as the pieces are made to lap one over the other, is kept on the outside, and that which has been cut within. The little animal now forms a third coating of similar materials, the middle of which, as the most skilful workman would do in similar circumstances, she places over the margins of those that form the first tube, thus covering

and strengthening the junctures. Repeating the same process, she gives a fourth and sometimes a fifth coating to her nest, taking care, at the closed end or narrow extremity of the cell, to bend the leaves so as to form a convex termination. Having thus finished a cell, her next business is to fill it to within half a line of the orifice, with a rose-coloured conserve composed of honey and pollen, usually collected from the flowers of thistles; and then having deposited her egg, she closes the orifice with three pieces of leaf so exactly circular, that a pair of compasses could not define their margin with more truth; and coinciding so precisely with the walls of the cell, as to be retained in their situation merely by the nicety of their adaptation. After this covering is fitted in, there remains still a concavity which receives

Among the many new things sent home by Mr. John G. Veitch there are several Conifers, some of which have been hitherto undescribed, and, in fact, unknown until discovered by him in his journeys to the interior of Japan. Of these the subject of our present illustration is one which Dr. Lindley has dedicated in honour of the discoverer under the name of *Abies Veitchii*. Mr. Veitch met with it in his ascent of Mount Fusi Yama, where it attains the height of 120 feet to 140 feet. He describes it as being intermediate between *Picea nobilis* and *P. Nordmanniana*, and it will doubtless prove a valuable acquisition to our already excellent collections of Conifers.

The leaves are from half an inch to an inch long, glaucous beneath, and all turned to one side on the shoots, and the

the convex end of the succeeding cell; and in this manner the indefatigable little animal proceeds until she has completed the six or seven cells which compose her cylinder.

"The process which one of these bees employs in cutting the pieces of leaf that compose her nest is worthy of attention. Nothing can be more expeditious: she is not longer about it than we should be with a pair of scissors. After hovering for some moments over a Rose bush, as if to reconnoitre the ground, the bee alights upon the leaf which she has selected, usually taking her station upon its edge so that the margin passes between her legs. With her strong mandibles she cuts without intermission in a curve line so as to detach a triangular portion. When this hangs by the last fibre, lest its weight should carry her to the ground, she balances her little wings for flight, and the very moment it parts from the leaf flies off with it in triumph; the detached portion remaining bent between her legs in a direction perpendicular to her body. Thus without rule or compasses do these diminutive creatures mete out the materials of their work into portions of an ellipse, into ovals or circles, accurately accommodating the dimensions of the several pieces of each figure to each other. What other architect could carry impressed upon the tablet of his memory the entire idea of the edifice which he has to erect, and, destitute of square or plumb-line, cut out his materials in their exact dimensions without making a single mistake? Yet this is what our little bee invariably does. So far are human art and reason excelled by the teaching of the Almighty."

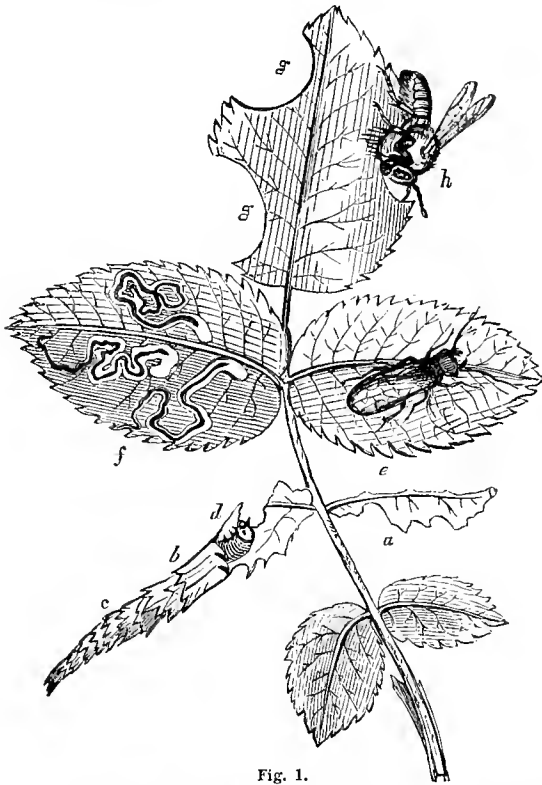


Fig. 1.

This bee lives alone, belonging to the group of solitaires. The body is about half an inch long. The female, which is the leaf-cutter, is black, covered with ashy-coloured hairs; jaws or mandibles large, terminating in four teeth; antennæ black, rather longer than the head; wings slightly transparent, dark tipped, veins black; legs hairy, spurs dull red, pollen brushes of hind legs golden; abdomen heart-shaped. The male's body thickly covered with yellow hair; antennæ longer than head; jaws two-toothed; dense yellow beard between the antennæ; fore thighs dirty yellow at the outward tip; abdomen rather oval, extremity inflexed, obsoletely toothed.

MICROSETIA CENTIFOLIOLA.—The leaf marked *f* in the preceding drawing shows the mining of the larvæ of a most minute moth bearing the name we have prefixed. The moth is only one-sixth of an inch across when its wings are expanded.

It is a most brilliant little creature, the body being golden with a purple gloss at the end, and the head red and woolly. The larvæ or grubs are orange-coloured, without legs, hatched from eggs deposited in the substance of the leaf during the spring. When ready to form cocoons they eat their way out of the leafy labyrinth they have formed, pass down the stem to the earth, and remain there until the time arrives for them to arise in the moth form.

LYDA INANITA.—For all the information we possess relative to this insect we are indebted to Mr. Westwood's notes in a work no longer published—"The Gardeners' Magazine of Botany." "For many years past we have regularly observed this insect in our garden at Hammersmith, in the last week in May and the first in June. It is constantly seen flying over, or settling upon, the leaves of the Rose, and its extremely glossy yellow wings, together with the rapidity of its movements render it quite a conspicuous object. Although, however, we have so repeatedly seen the insect, we have never yet been able to find a single male, all the individuals which we have observed and captured having been females. This sex measures five-twelfths of an inch in length, and the expansion of its forewings measures seven-eighths of an inch. The head and eyes are black; the front of the face, a heart-shaped spot between the antennæ, and a curved spot behind each eye, pale yellow. The jaws, palpi, and antennæ are also pale yellow, the extremity of the jaws being black, and the tips of the antennæ rather brownish. The thorax is black above, with the collar pale yellow on each

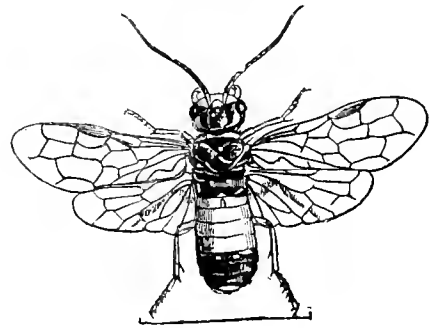


Fig. 2.

side. The abdomen is black, with the second, third, fourth, fifth, and terminal segments of a rich orange yellow. The legs are pale yellow, and the wings very glossy, and of a yellow tinge, with dark veins. Fig. 1. *e* represents the female of the natural size, and the woodcut (fig. 2), shows it magnified.

"The male, which is extremely rare (and for an opportunity of figuring which we are indebted to James Francis Stephens, Esq.,) is smaller than its partner, measuring only one-third of an inch in length, and five-eighths of an inch in the expansion of its wings, it differs also in being considerably darker in its colours; the antennæ being brown, except the two basal joints; the abdomen is black, the fourth and fifth segments being variegated with yellow, of which colour there are also spots at the sides of the preceding and following segments; the head is black beneath, with the sides pale yellow, the body

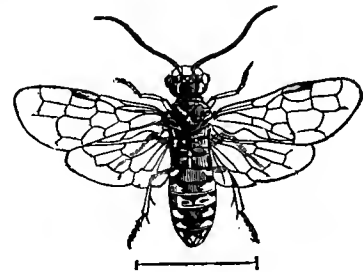


Fig. 3.

(including the whole of the abdomen), is pale yellow beneath, with the hind part of the mesosternum, and the greater part of the metasternum, black. The wings have very little of the yellow tinge of the female. The woodcut (fig. 3), shows the

male magnified in the same proportion as the female. We believe that no figure has hitherto been published of the male.

"At a later period of the year—namely, in the month of July and beginning of August, we met with a curious object on the same Rose trees which we are able at once to recognise as the larva of this Sawfly and its moveable case. Fig. 1, *d*, in the preceding cut, represents this larva with its head and the anterior segments of the body protruded out of the case, *b*, the wider part of which is formed of portions of the leaf upon which the larva is feeding, and which it has not yet actually detached from the leaf. Fig. *c* indicates the narrower part of the case formed of portions of other leaves; fig. *a* showing the opposite leaflet almost entirely stripped to its midrib; one portion having been consumed, and another portion employed in the construction of the narrower part of the case.

"The proceedings of this larva in the manufacture of its case are full of interest; it will be observed, for instance, that the instinct of the insect teaches it to arrange the narrow strips of the Rose leaf, of which the case is formed, in a spiral direction, that being the only method in which greater length can be given to the case, in order to keep pace with the increased size of the insect; the spire is kept in its position by means of silken threads, which the larva weaves from its mouth, and by which it attaches the mouth of the case to the leaf when it has finally detached the strip. As the soft skin of the larva requires a covering for a defence, so the insect, on the slightest alarm, withdraws into the mouth of the case, otherwise when it desires to feed it protrudes the front of the body for about a quarter of an inch out of the mouth of the case, and then gnaws the Rose leaf at its ease; the pair of legs at the end of its body enabling it to keep firm footing within. Now, it will be seen that the length to which the body is protruded is just the width of the strip of the leaf of which the case is made, and so it is that, commencing at one end of a leaf, it cuts away the strip, fastening it by degrees with silken threads to its house. Huber has given a very full account of the proceedings of a species with precisely similar habits, found upon the nut, a translation of which appeared in the 'Annals of Natural History' a few years ago. The curious reader will, in this memoir, notice not only the detail of the proceedings themselves, but the intensely inquiring mind of the author, whilst his name is a guarantee for the correctness of his observations."

FOREIGN CLIMATES AND PLANTS.

No. 4.

HAVING now left Nice for a rather more extended tour, it will be necessary somewhat to alter the heading of these letters. Most of the English and other winter visitors leave Nice on the return of the warm weather of spring. The power of the sun becomes so great that country excursions begin to get too hot in the middle of the day; and, consequently, large numbers take their departure during April, and the early part of May: so that by the end of that month it is almost deserted, except by those to whom sea bathing is an object. The Flower Show which I mentioned in a former letter as being about to be held at Nice, duly took place, and caused considerable interest, being the first thing of the kind there. Under these circumstances, of course, the perfection of London shows could not be expected; it was, however, very creditable as a beginning. One thing was rather against it: as it was set on foot by way of commemorating the anniversary of the annexation to France, and as all parties are not in favour of that movement, some did not cordially unite in promoting the matter. A new seedling Rhododendron was exhibited, white spotted with black, very pretty, to which the name of "Nice Français" was given. One immense bouquet was shown, the centre of which was white Camellias, in the form of a star; it was more than 6 feet in diameter. It may, perhaps, help our national pride a little, to say that our countryman, Mr. E. Stuart (whom I have before mentioned) took the prizes offered for three new Camellias, Collection of eut Roses (very fine), collection of Cinerarias, and for ten varieties of Stocks, which were much admired. As a rule, Camellias do not succeed well in this climate, it being too dry for them; they do much better in the open air on the banks of the lake of Como, where the atmosphere is moister, and there they attain a large size. As being different to the proceedings of shows in England generally, I may state that on the day following the close of the Exhibition, a public meeting (by announcement) was held,

at which a large number of persons were assembled, when the chief government officer, the Prefect of the Maritime Alps (M. Gavini), presided; and after a very laudatory speech, the prizes were distributed to the successful competitors.

The increased warmth of the atmosphere has, of course, considerably changed the appearance of the country. The numerous Plane trees are nearly in full leaf, so are also the Figs and Vines. The Horse Chestnuts and Hawthorn (it can hardly be called May here, as it blossoms in April), were in flower on the 2nd instant; Iris germanica (our large blue Flag), wild, and Apple trees, on the 6th; Judas trees and Lilacs are finely in blossom; and the Alpine Strawberries have, for the last fortnight, been sold in the market at Nice.

At the close of our meetings for the study of wild flowers, to which I before alluded, it was found that at the eight meetings upwards of 120 different kinds had been examined and discussed. Some of the dried collections were quite ornamental, as well as useful for future reference.

The drive from Nice to this place (Mentone), along the celebrated Cornice road, said to be one of the finest in Europe, is very splendid. The bright, green, fresh foliage of the Figs, Cherries, and other fruit trees contrasts well with the dusky dark appearance of the Olives standing out from the bare rocks. Near Turbia it attains an elevation of about 1800 feet, the aneroid barometer sinking upwards of 2 inches, and rising again on descending to Mentone on the sea level.

Almost the first thing which strikes a stranger entering the town is the constant stream of women Lemon-carriers, that fruit being very abundant and fine—just the opposite to Nice, where Oranges are principally grown. The Lemons are carried in the hot sun by women, barefooted, in open baskets, containing about 500 each, on their heads; they are of a great weight, being balanced by the overhanging ends of the cloths on which they are laid. It has very much the appearance of female slavery. The fruit is taken down to the ships for exportation to England, America, and other places; the price is from 1d. to 1½d. a-dozen. The Mesembryanthemum edule, or Hottentot Fig, flourishes upon the rocky banks; its magnificent pink blossoms expanded in the sun measuring 3 inches across. Gazania splendens is very fine in the gardens, and the size of the Stocks of various colours is enormous: in the evening the air is quite scented with their perfume.

The rare Ferns found in this district are the elegant Cheilanthes odora, Asplenium Petrarche, Gymnogramma leptophylla (very pretty and graceful, being annual in its habit), and the Asplenium Fontanum or Halleri. The two former are difficult of cultivation in England, but here they grow freely. I may mention that when at Nice I discovered another habitat of Pteris cretica in a damp valley, where the breath was visible as in a frosty day; it there attained the height of 3 feet.—E. COPLAND.

ZEPHYRANTHES PRATENSIS.

I HAVE a lovely bulb in bloom, which I purchased as Zephyranthes pratensis, but I can find no such name in any book to which I have access. Can you tell me anything about it? It is a bright vermilion red, with a green base to the flower, the stem bearing three flowers—unlike any Zephyranthes I have seen, the flower being generally solitary in that class. It rises about 18 inches high, the leaves narrow and strap-shaped, not erect. It is a beautiful thing, and I should like to know if that is its true name. It is not in London's "Hort. Brit." nor in the supplement.—A. R.

[No Zephyranthes has been named pratensis as far as we know; and if it had, your bulb could not be it, for by your description it is altogether out of the difficult group by which Zephyranthes is surrounded. A Zephyranthes with more than one flower on a stalk was never seen; and if it were, it would break down the most and best definition of the family. Your bulb seems to be a Phycella, or something that way. The "Wild Flowers of Great Britain" will be published "just as they come to hand."]

WORK FOR THE WEEK.

KITCHEN GARDEN.

Asparagus, when cutting, allow the weak shoots to remain. *Beans*, make a sowing of Longpods and Windsor. When the early crops show bloom pinch off the tops. *Cauliflowers*, fork

up the soil surrounding them, and afterwards give them a good soaking of water, to be repeated frequently during dry weather. *Cucumbers*, prepare trenches for hand-glasses $2\frac{1}{2}$ feet wide and 1 foot below the surface, and then fill with prepared dung, leaves, and short grass 6 inches above the surface. Light, rich mould to be placed beneath the glasses, and the rest of the dung to be covered with the soil that came out of the trench. *Endive*, sow a little of the White Curled for an early crop. *Lettuce*, give a few of the earliest plants a good supply of water to bring them forward. Some of the *Cos* to be tied up to form heads. *Mushrooms*, if they should be required during the summer, make a bed now; they will keep longer in bearing, and the crop will be sounder and better during the hot summer months if a good portion of cowdung and loam is mixed with the droppings when making the bed. Water old beds when dry. *Tomatoes*, see that they are getting properly hardened off to be transferred to spare palings or open parts of the garden walls towards the middle of the month. Embrace every opportunity of destroying weeds and insects. Clear away all Cabbage and Broccoli stumps as soon as done with.

FLOWER GARDEN.

Old plants of *Chrysanthemums* planted at the foot of a wall in good rich soil will cover a wall 6 feet or 8 feet high by the autumn, and if properly trained will flower beautifully in the dull months of November and December. Many of the herbaceous plants will now require a little attention in staking each branch separately. Attend to the young growth of climbers before they get crowded, and remove any strong branches that are not likely to produce flowers.

FRUIT GARDEN.

Continue to disbud wall-fruit trees a little at a time and often till there will not be a superfluous shoot left on at the end of the summer: this, with shallow, well-drained borders, is the grand secret of the successful culture of these trees. Look out for curled leaves, and destroy the grub. Thin Apricots, if set too thickly. Stir the surface of the earth among Strawberry plants, and if in a dry state give it a liberal supply of water. Have ready a well-prepared piece of ground for planting out as they are brought from the forcing structures all the pots of forced Strawberries; they will produce strong runners for the next year's forcing, and the crops next year from those left in the ground are generally far superior to the crops grown in the usual way.

STOVE.

Very little fire heat will now be sufficient if the practice of shutting up early in the afternoon is adopted. Attend to training the shoots of twiners as they advance in growth; also, attend to the stopping and training of other plants, and afford the free growing ones plenty of pot room. Proceed with the potting of Orchids as they require it. Do not allow the plants on blocks or in baskets to suffer for want of water; for when the soil in baskets is allowed to get thoroughly dry, the water is apt to run off. Persevere in keeping down insects.

GREENHOUSE AND CONSERVATORY.

Camellias now making their growth require large portions of water daily, if the pots are thoroughly drained. Watch carefully the progress of climbers, see that they are frequently trained, as they soon get out of order. Hybrid Indian Rhododendrons and Chinese Azaleas will now be in great beauty, and every precaution should be taken to preserve the blooms from damp and drip. Supply them liberally with water at the roots, as, during their blooming season, they require large quantities. Many Heaths and hardwooded plants will now be in bloom, or approaching that state, and, therefore, will require careful attention in watering, and abundance of air, bearing in mind the injurious effects produced by currents. Plants out of bloom to be placed where they can enjoy a rest for a short time, as otherwise they generally break weakly when the new growth commences.

PITS AND FRAMES.

Pot off all recently-propagated plants, and see that you have a sufficient stock of everything to plant your beds properly, if not, get in some more cuttings without delay, which will do well to fill up gaps in the summer. The long-continued easterly and north-easterly winds with frosts render the management of bedding stock rather difficult this season; for it is still dangerous to risk even the hardier kinds from under the protection of glass. All that can safely be done, until the weather changes, for

hardening the stock preparatory to its being planted out is to give as much air as the weather will permit without injuring the plants, and to place Calceolarias and the stronger Verbenas in turf-pits, where they can be protected at night, and sheltered from the drying winds. W. KEANE.

DOINGS OF THE LAST WEEK.

KEPT turning over the unoccupied ground in the kitchen garden, turning over the beds in flower garden to pulverise the heavy soil, and getting the heated soil down and the cold soil up. Staked all the Peas that were up and any length, as the ground was nice and dry, and forking the ground slightly among and close to the rows to encourage active growth. Sowed succession crops of Peas and garden Beans, and the first sowing of Kidney Beans and Scarlet Runners out in the open ground. Sowed also French Beans in boxes, to plant out under a little protection. Sowed also a succession of Turnips, and Scarlet and Turnip-rooted Radishes; and of Turnips, now preferring chiefly the American Red-top, for its white colour, and delightful, crisp, sweet flavour. There are several fine yellow Turnips as the Maltese, but there is not one cook in a hundred that will cook them. Watered newly planted trees and shrubs, and Currants, Gooseberries, and young plants of Strawberries, and those turned out of pots in which they had been forced. Hoed the surface between the rows, but not deep, so as to cut up any small seed-weeds, and chiefly to make a loose surface to prevent the ground cracking in the dry, cold weather. Strawberry plants showing very well, and will have a dressing of lime with a little soot, if it can be spared, between the rows, to kill or set a-flitting the whole tribe of snails or slugs before the fruit begins to swell, and thus prevent, if possible, the annoyance when picking an extra fine dish to find that many of the best fruits have had a hole pierced in their sides before you gathered them. Disbudded Peaches and Nectarines, and watered those in pots as required. Tied out and thinned out all the extra shoots in second vinery, and removed extra laterals in first vinery, and nearly finished thinning fruit, and when that is done, will allow more laterals to remain to increase root action, and remove and thin gradually as the fruit approaches perfection. As the fruit is now swelling in the small Vine-pits and the early house, the night temperature averages 60° , the day temperature from 70° to 75° without much sun, and with sun and air early given rising from 75° to 85° , and 90° . In the second vinery where Muscats and others are coming into bloom, we like the night temperature to range from 65° to 70° , but are content even with 60° , if we get a good rise from sun heat during the day. The Muscats generally set well. The house is kept in a medium state as respects atmospheric moisture, and in a very warm day has the floor and stages sprinkled whilst the Vines are in bloom. Extra dryness and extra moisture in the atmosphere are equally prejudicial at that period. In the late vinery, tied up last week, went over it and thinned out a number of extra shoots, and marked those with a piece of matting attached to them that were intended to be fresh leaders and rods for another year. Keep this house just beginning to show fruit at about 50° at night, and plenty of air during the day, as it is coming quite as early as we wish. Filled all the underpart chiefly with Fuchsias, fresh shifted into large pots, and the front, back, and suspended shelves near the glass with Strawberry plants. This house being the only vinery now in which they will do any good except at the front of the house, as even if the fruit should swell, it will neither have fine colour nor good flavour without the direct action of light. The great dependence here is on Keens' Seedling, but Prince of Wales (Ingram's), is showing and setting well; British Queen is also showing well but later; and much the same may be said of Sir Harry, the chief merits of which, in-doors, I always consider to consist rather in the size of the individual fruits than the quantity that can be gathered from a plant, or a row of plants. It also sustains carriage better than Keens', and so do the Prince of Wales, Queen, and others. But for a regular continuous daily supply, to be sent at once from the garden to the table, none I have yet met with is so useful when grown in-doors as Keens'. Took up a number of small plants of Keens' that had been pricked out thickly in a border in autumn, and potted those showing strongly and plunged them in a bed of leaves out of doors, in case they should be needed before the out-door supply should come in. Such plants are very useful at this season for filling a pit, or frame, with or without the assistance

of a little artificial heat. Regulated Cucumber and Melon plants, and in the case of the latter disbudded all incipient shoots not wanted, preferring to have no fruit shown until the plants had obtained strength to set and swell the young fruit when it did show. Of this more next week if I can think about it. Cleaned and swept Mushroom-beds, and gathered large ones to prevent the beds being exhausted. Put up a bed consisting chiefly of old stubble and tree leaves, in a shed out of doors all open in front, making the bed about 15 inches deep, and treading it firmly just to secure a little mild heat, and using the above because I could find no better, and knew it would answer my purpose. On that spread about 2 inches of short straw and fresh horse-droppings, and beat or trod firm. When that bed heats and begins to cool moderately to 80° or 90°, the spawn will be inserted almost on the surface, and be covered with 1 inch of similar droppings, and as soon as practicable be earthed down and covered slightly with dry hay. In such a place we generally have a fine supply in the hot summer months, when the Mushrooms in houses are apt to become thin and eaten by maggots. The open side of the shed faces the west, but trees intercept the sun's rays, and to keep it out more effectually and prevent too great a sweep of air, wattled or thin-strawed hurdles are placed along the sides in front. Thinned out and regulated the shoots in the Fig-house, generally showing plenty of fruit. Here I may note, my White Marseilles is showing few fruit, while one of the small plants obtained from Mr. Rivers is showing fruit at each joint, thus proving so far that there must be two varieties of that fine Fig. The trees being planted in stiffish soil, above a layer of brickbats, and with openings to let out extra water, gave the trees a good watering with water from the farmyard drainage, adding other water to prevent it being too strong. Continued to put in cuttings of Verbenas for the last time, and to turn out those struck, generally in lumps or small potfuls, in soil below calico protection, and to prick off seedling Petunias, *Cineraria maritima*, *Lobelia*, *Calceolarias*, *Chilices*, *Tomatoes*, and other things too numerous to mention, using large pots or boxes for this purpose, filling the pits half full of any rough material and just having some fine soil within 1 inch or 2 inches of the surface. Sowed Balsams for the first time, as it is useless to sow if you cannot find room to grow. It will be time enough to sow in the first week in May, for plants intended to be placed in rich soil in the flower garden.—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the "Journal of Horticulture, &c."* 162, Fleet Street, London, E.C.

TRANSPLANTING TULIPS AFTER BLOOMING.—(L.).—The 1st of May will be too late and too early to remove Tulips; the later in May they are removed the better. But there is no risk in moving them any day; the effect of moving them too early will be smaller bulbs for another year.

NEW LARGE BED (D.).—Your new large bed of bad wet soil, for which no preparation can be made this season for planting it, might puzzle a lord; but a lady would soon turn it to good account, it only as a refuge for the destitute. But another "D." and a "B." would probably make it the best-telling bed in the garden after the following manner:—Line it off in shallow drills 2 feet apart, and drop seeds of *Tropaeolum majus* at 2 feet asunder in the drills; or without drills, put them in at the same distances, like planting winter beans. When the plants covered the surface, he would also, probably, put a row of stout pieces from the tops of pea-takes all round the bed at a yard from the sides: these would stand 3 feet apart, and be just 2 feet only above the surface. Another row of such stakes, but a yard above the surface, he would place along the centre of the bed, in such a way as would make every stake in the centre row stand midway between each two in the first row all round. The shoots would soon run up and cover these stakes completely, and festoon themselves on the natural system. He might assist them to run up, it is true, also incline them to the artificial system of festooning, but that is not here or there; and you might take another turn, and hit on a whole collection of the seeds of all the new Tropaeums, and do them on that plan, and perhaps make an edging of Tom Thumb Tropaeum all round, putting in the seeds 10 inches from the sides, and 10 inches seed from seed, if the seeds were all to be depended on for sprouting. No plants pay better in the worst soil than the Tropaeums, provided always the worst soil is fresh, and has been recently dug, trenched, or knocked about.

BASILLA CORDIFOLIA (O. P.).—There must be some mistake about the plant you received from Philadelphia, as *Basilla cordifolia* is an annual which needs to be reared like ridge cucumbers; the leaves only are of any use, being a kind of bad Spinach not worth growing in England. The French have used it as orach.

ROSEWOOD (A. H. W.).—It is the wood of *Physocalymma floribunda*—a tree about 80 feet high, found in the province of Goyaz, Brazil.

NEW FUCHSIAS (F. M.).—Your list of twenty-nine kinds of new Fuchsias contains only such kinds as have not yet been proved by public competition; none of them, therefore, could with justice be recommended before another, and no one could do so but at random. Selections can only be safely made after public judgment has passed. We recommend all new seedlings which are promising as new plants, not as selections. There is a wide difference between recommending new plants and recommending a selection of new or old plants, which ought to be well understood by the public, to save the purse and the credit of editors. *Cineline* is the only one out of your list that we have yet decided upon as first-rate.

POTATO ONIONS (*Ignoramus*).—These should be divided before being planted.

VINES FAILING (*Bib*).—The leaves falling and shoots dying intimate that there is a failure at the roots. Want of drainage, or bad subsoil, or some other circumstance depriving the Vine of a supply of sap, is the cause of the mischief; but no one can tell without an examination of the roots.

ONOTHERA TARAXICIFOLIA AND MACROCARPA (W. C. W.).—The two *Onotheras* ought to bloom from February-sown seeds after the middle or end of July; but much depends on the kind of summer and the nursing of the seedlings before turning them out.

FLOWER-GARDEN PLAN (*Rector*).—Your planting is very good and choice, save the edging to *Gazania splendens*, which trails like a *Verbena*, and no edging could be safely kept round it, except, perhaps, an edging of *Gazania rigens*, which is a stiff, upright plant, with the same kind of flower.

EMPLOYMENT AT CRYSTAL PALACE (G. & M.).—We do not know that more gardeners are required there, and none would be employed without unexceptionable testimonials.

STUMPS OF TREES ON LAWNS (*A Notice*).—Scarlet Geraniums encircled by *Nummularia* look well; but not knowing the size of the stumps, nor their situation, near or far from the house, we cannot advise you. Send a ground plan, and what you propose planting, and we will tell you what we think.

CUTTINGS OF MONTHLY ROSES (J. T.).—These root well managed just like *verbena* cuttings in the spring and autumn, but take longer time to root. An old Myrtle is an enormous rooter and needs great room; but at this season almost all the ball might be shaken off, and one-third of the tops of the roots be then cut off. Give strong fresh loamy soil, and in July and August it requires abundance of water.

AZALEA AND CAMELLIA CULTURE (A. F. W.).—You would see lately in "Doings for the Week" much that would suit your purpose. Azaleas and Camellias may be treated much the same. As soon as finished blooming, and all the old flowers removed, it is well to try and stimulate fresh growth by extra heat and moisture, so as to get the flower-buds forced early. When the end of the young shoots become hard, they may stand anywhere in the open air, provided they are put in doors before suffering from cold. This assistance now is all the forcing the Camellias will need; but the Azalea-buds being properly set and matured, you may bring them into bloom in winter and spring, just as you like to apply the heat. Perhaps ere long Mr. Fish may meet your wishes by fuller directions, though they chiefly be repetitions of previous papers on such subjects.

CLIMBERS FOR CONSERVATORY ARCHES (H. B.).—It is no easy matter to manage evergreen climbers to cover arches ways, under glass, when they must be grown in pots or boxes. *Teocoma jasminoides* is the best we know, as you care more for a fine green than for flowers; and *lithyospermum jasminoides* is about as good a plant as the other and blooms freely. Put them in the largest boxes you can manage, with strong loamy soil, and a perfect drainage, as in summer you will have to water often. When three flower-beds, or thirty, or three hundred, are seen from one end in a line, there need not be a match pair in the whole, and a bed of *Tropaeolum elegans* must never have an edging of anything; it would kill the edging plants. The rest of your proposals are very excellent.

HARBY ORCHIDS AND FERNS (A. C. W. P.).—The information has been printed in our columns, and a separate work on the subject by Mr. Appleby, will be published at our office in a few days.

SHADING ANNUAL SEEDS SOWN, &c. (*An Old Subscriber*).—All annual seeds should be shaded under glass until the seedlings are up; it saves watering and they come quicker. Sowing on a border in patches, and a pot turned over each patch, is a good plan. After the seedlings appear, shading does more harm than good, except in the middle of hot days. We never mix manures with them. No watering is necessary to Crocuses, Irises, early Tulips, or bedded Hyacinths, after the leaves begin to turn yellow at the bottom. The best plain-leaved Scarlet Geranium for bedding, is the Crystal Palace; and of the horse-shoe-leaved, Baron Hugel. Punch is kept dwarf and level in growth, by merely making late autumn cuttings of it.

NAME OF ORCHID (A. Z.).—It could not be told from such a fragment. There is no novelty in your treatment of the Nymphæa; and speculation about the Cucumber would be waste of time and space.

NAMES OF INSECTS (J. M.).—The insects which have devoured your rows of Peas are the striped Weevil, *Sitona lineata*. Strew soot thickly along the rows, having previously watered them. Pulverised unslaked lime spread half an inch thick upon the ground has also been suggested as a remedy.—W.

NAMES OF PLANTS (S. Dero).—No. 1, *Alliaria officinalis*, commonly called Sauce Alone and Jack by the Heds.; No. 2, *Stellaria holostea*, the Greater Stitchwort. (*Trisulca*).—Your Fern is *Blechnum spicant*, var. *imbricatum* (R. F. S.).—The leaves are like those of *Hoya carnea*.

FLOWER SHOWS FOR 1861.

MAY 18th. CRYSTAL PALACE. (Plants, Cut Flowers, and Fruit). Sec., W. Houghton.

JUNE 5th and 6th. ROYAL HORTICULTURAL SOCIETY. (Plants and Fruit). Garden Superintendent, G. Eyles.

JUNE 12th and 13th. YORK. Sec., J. Wilson.

JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. Sec., E. Carpenter.

JULY 6th. CRYSTAL PALACE. (Rose Show). Sec., W. Houghton.

JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show). Garden Superintendent, G. Eyles.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit). *Sec.*, W. Houghton.
 SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers). *Garden Superintendent*, G. Eyles.
 SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. *Sec.*, E. CARPENTER.
 NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums). *Garden Superintendent*, G. Eyles.
 NOVEMBER 12th and 13th. STOKES NEWINGTON CHRYSANTHEMUM SOCIETY. *Sec.*, W. T. Howe.
 NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show). *Sec.*, W. Houghton.

N.B.—*Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.*

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

MAY 21st, 22nd, and 23rd. CHESTERFIELD AND SCARSDALE. *Hon. Sec.*, Mr. Thos. P. Wood, jun., Boythorpe House, near Chesterfield. Entries close May 1st.
 MAY 22nd and 23rd. BEVERLEY. *Hon. Sec.*, H. Adams. Entries close May 4th.
 JUNE 4th, 5th, and 6th. BATH AND WEST OF ENGLAND. *Steward*, S. Pitman, Esq. Entries close May 4th.
 JUNE 19th, 20th, and 21st. COALBROOKDALE. *Secs.*, J. B. Chune, and Henry Boycroft, Coalbrookdale.
 JUNE 25th. ESSEX. *Sec.*, W. R. Emson, Slough House, Halstead, Essex.
 JUNE 25th. DRIFFIELD. *Sec.*, Mr. R. Davison. Entries close JUNE 22nd.
 JUNE 28th and 29th. TAUNTON. *Sec.*, Mr. Charles Ballance. Entries close JUNE 14th.
 JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. *Sec.*, Mr. E. Fowler, jun., Market Street, Blackpool. Entries close JUNE 30th.
 AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. *Sec.*, W. Houghton.
 SEPTEMBER 3rd. POCKLINGTON (Yorkshire). *Sec.*, Mr. Thomas Grant. Entries close AUGUST 26th.
 SEPTEMBER 24th. BRIDGNORTH. *Sec.*, R. Taylor, Bridgnorth.
 DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. *Sec.*, Mr. J. B. Lythall, 14, Temple Street. Entries close NOVEMBER 1st.
 DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. *Sec.*, W. Houghton.
 N.B.—*Secretaries will oblige us by sending early copies of their lists.*

PRICES OF POULTRY IN LONDON.

THE dearth of poultry in Leadenhall Market still continues, and with the dearth the high prices. The supply at this season of the year is as important to those who deal in it as cotton is to Lancashire, and to Manchester in particular. It is the same with both parties. So long as the supply is regular, prices tolerably easy, and things smooth, it is hardly worth asking whence the goods come; but when there is the prospect of losing the article on which the trade depends, there is eager inquiry for a new market, or for a substitute; and vows are made, that for the future they will not expose themselves and their trade to the chance of suspension, nor to the fluctuations of one market.

We will leave cotton to fight its own battles, but we must continue our remarks and instructions on market and its supply. Since we last wrote the quantity sent to market has diminished rather than otherwise: as a natural consequence prices have been more than maintained. We have always fancied that unusually high prices in a public market are like the fiery cross of former days in Scotland—the message is heard and understood by all whom it concerns, and the summons is attended to.

In Kent, Surrey, and Sussex, the electric telegraph works from Leadenhall Market to the different towns on market days; and those two hale, hearty men who are squabbling, almost fighting, over that basket of fowls, are roused to their state of excitement by the news sent from London of that morning's market, and an increase of price. Perhaps our readers have no idea of a poultry market at this season of the year when it is scarce. There is none entirely devoted to fowls and chickens; but as the cottagers and small farmers go with other produce, so they take their poultry; and the higgler who collect, attend for the purpose of buying it.

When the demand for fowls is as great as it is now, you will find the first people at market will be two or three men who will arrive in skeleton carts filled with crates for live fowls. When they have put up their horses they walk uneasily about the market place, watching those roads by which fowls mostly arrive. If a well-known face is seen, one who has the reputation of feeding good ones is seen, or if a crate is seen at the back of a cart, all three start at once at a run; each wants a promise of the refusal of the lot—that is, the offer of them at a certain price. We do not believe those who talk of "picking up" things, or, to speak plainly, those who do not buy bargains, but who are continually trying to persuade the world that their superior knowledge has enabled them to buy things at a price far below

their real value. Our experience is, that as a rule, sellers know quite as much as buyers, and that it is next to impossible to buy 5s. worth of anything with 2s. 6d. The owner of the fowls is aware of their value, and refuses to commit himself in any way. He will pitch his wares in the market. He does so, and often a bigger will take each end of the crate, and thus without handling they will bid against each other till one or the other gives up, and the fortunate purchaser has carried his point at a price that renders profit impossible. The first time this happens, it acts like the "fiery cross." Far and near it is spread that such a one made such a price of his fowls; every one who attends that market becomes the "colporteur" of the news, and many a chicken is crammed that day for the first time in consequence.

It also acts as a summons, every fowl that is nearly ready for killing is taken at once to market and finds an easy sale at a large price. But there are times like the present, when those who are habitual senders cannot supply a sufficient quantity, and then there should be help from the class we wish to interest in it. We wish amateurs to be providers; we wish ladies and gentlemen to take trouble with marketable poultry as they do with honey, fruit, or cattle. No man, whatever his position, hesitates to sell surplus fruit; a nobleman will have an annual sale of fat stock, why may not a lady in the country sell some spring chickens? Too many imagine that it is useless to undertake it unless they can send dozens at a time. They would soon see their mistake if they attended the markets. The higgler who collects two dozen does so very often from five or six different people. They bring that which they have—one four, another three, and so on, and these often take back the figures we quote, and which are sometimes called in question.

(To be continued.)

ENDURING INFLUENCE OF THE MALE—CHARACTERISTICS OF DORKINGS.

SUPPOSING a Spanish cock escapes for half an hour or so with a Dorking hen, how many eggs are laid before the cross shows itself? and does it affect one egg or the whole set?

How may I distinguish a coloured Dorking cock from a Silver Grey Dorking cock?—A NEW SUBSCRIBER.

[If the Dorking hen has been running without a cock, then the probability, but not the certainty, is that the eggs she will lay are all spoiled. If she has been running with a Dorking cock previously, we do not think the accident will have any result.

A Silver Grey Dorking cock *must* have a black breast and tail, *white* hackle and saddle, and *must not* have any red or chestnut feathers. An ordinary Dorking has no colour, and may indulge in any vagaries as to tint or hue of feather, but he *must* have white legs.]

PROFITABLE POULTRY KEEPING.—No. 3.

(Continued from page 70.)

MUCH has been said and written relative to the soil on which hens and their chickens best thrive. There can be no question that sand or gravel is to be preferred; but let none despair should their lot be cast on a stiff clay, for it was on such that the results given in my last were obtained.

And now for the life of a chicken from the nest to the salesman. This I will endeavour to exemplify by a few simple rules, which will require the exercise of common sense only to bring matters to a successful issue.

KEEPING OF EGGS FOR SITTING.—Eggs intended to be used for sitting should never be laid on their sides, but retained in an upright position, with the narrow end downwards. This is readily managed by putting a few inches of moss into a shallow box, and placing the eggs therein.

SITTING THE HENS.—In spring and summer put the "magic number," thirteen eggs, under the hens; but in autumn and winter do not exceed nine or ten; and care must be taken that the eggs are all of one day's laying if possible. More depends upon attention to this than may at first sight appear. It is well to sit more than one hen on the same day, should you be so fortunate as to have more than one hen broody. This simplifies after-management, by making one hen nurse two hatches; and allows the others to recover strength and come into laying again sooner. If possible, sit on the ground; but should the

hen have chosen her nest do not disturb her, unless the situation be manifestly disadvantageous, and place a large turf under her.

HATCHING TIME.—If attention was given at sitting time to use none but eggs of an equal age, the chicks will, as a rule, break the shell within a few hours of each other. New laid eggs will be hatched under the twenty-one days; fresh eggs (those laid three days or a week before sitting), will take the entire time; and stale (though not unprofitable eggs), I have known take from twenty-two to twenty-four days. Chicks from the latter, are generally not so lively and do scarcely so well; but I have rarely noticed any difference between those from new laid, and those from fresh eggs as to their after-thriving, each coming as early to profit as the other. It is a most reprehensible practice to remove the chickens from the nest as they are hatched; it irritates the parent bird, and I think it is positively essential to the well-being of the young ones to be left with the hen. I cannot lay too great stress on this point, for it is the fruitful source of disappointment and loss. When all are free from the shell, entice the hen off the nest by throwing down some food, and then remove the shells. Do not afterwards disturb her for twelve hours or so. She knows when her young are strong enough to move about, so leave this to her.—**LEIGHTON.**

(To be continued.)

LEG-WEAKNESS IN A COCKEREL.

I HAVE a Dorking cockerel eleven months old which cannot stand to eat its food. Its legs tremble very much when standing, and the claws are now getting drawn backward. It has been in the same state since being a chicken. I attribute the whole to entire weakness. The bird eats greedily, and appears in every other shape quite healthy—the comb being red, and stands erect. I fear his walk has not been good, being short of food, and under-walked with other cocks.—**R. P. B.**

[It may be that the bird has been badly walked, and that would account for the weakness; but if that were the only cause, better feeding would remedy it. We should be disposed to attribute it more to a bad flooring of the roosting-house. Stones, bricks, and boards would all cause paralysis. If this be the reason, the cock is in the same state as a man, who, having slept in a damp bed, recovers his health, but loses the use of his limbs. Whether this be the cause or not, a bird of his weight (10 lbs.) is worth saving at the cost of some trouble. Feed him frequently a little at a time on stale bread soaked in strong beer; give him boiled egg chopped fine, and if that does not succeed, give him some raw beef.]

LIGURIAN BEES IN SCOTLAND.

I HAVE just received the following letter from a correspondent, to whom I sent the only Ligurian queen which I was able to part with last season. I have again commenced rearing Ligurian queens, and have every hope of being enabled to supply all who apply to me with as many as they may require.—**A DEVONSHIRE BEE-KEEPER.**

"Now that the rigours of a more than ordinarily severe winter and also somewhat untoward spring may be considered over, I may now be able to give you a pretty correct idea of the state of my Ligurian-hive, which I got from you last season. I have every reason to be satisfied with its present appearance. They are a strong hive and breeding rapidly for this season of the year, and working very vigorously whenever the weather will admit of their being out. I see that they are generally at work an hour earlier in the morning than the others, which will be an advantage in the honey-gathering season; and, indeed, in every respect they seem perfectly adapted for our northern Scotch climate. They have been breeding young bees since the beginning of March, but, of course, now producing them in a greater ratio. I have been feeding with Glasgow peameal for fully a fortnight, but have withheld it as soon as the blossom has got out on the berry bushes, &c.

"It has fared better with my apiary than with most of my neighbours, as my stock appear all in working order, with the exception of one which has lost its queen, which I hope to be able to replace if the weather proves favourable. However, I may mention that I shall not be greatly disappointed if I should fail in this case, as they are not very strong of bees.

"This winter has proved very disastrous on bees throughout

this county (Berwickshire); as I am decidedly within the mark when I say, that fully two-thirds of the bees have died throughout the county: in several instances, only one is alive out of a stock of eight or ten.—**J. S.**"

BEE-HIVES AND THEIR APPURTENANCES.

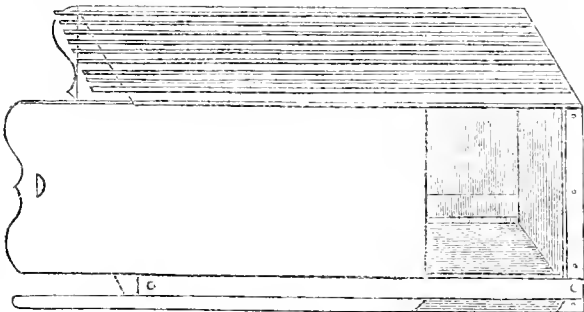
(Continued from page 72.)

MOVEABLE FRAME-HIVES are only different as regards the frames. The mode of fitting may be worth mentioning. I carry the notch on the bar in as far back and front as to allow the top of the end pieces to be sprigged thereon (which saves clamps). They are held together below by a narrow slip of wood, or, as good, a stout wire. Having the bottoms of the frames as broad as the bars impedes the ventilation of the hive.

ADAPTER-HIVE SYSTEM.—A common fault of many depriving-hives is a *fixed breeding space*, possibly too large at the outset, and too small afterwards. Take for example the absurdity of Nutt in his collateral-hives, devoting a space of only 1 foot square by 9 inches deep, as his pavilion of Nature for a *non-swarming* colony, expected to fill two end-boxes of pure comb of similar dimensions. No ventilation could possibly keep a prolific queen from either breeding in the end-boxes, or swarming in disgust. He must have made but a slight acquaintance with bees who has not observed their contrivances, if I may use the word, the diversities in the breeding powers of queens, the unequal size of swarms, the variableness of our seasons and climate no doubt materially affecting the whole. The great desideratum, then, to the practical bee-keeper is, the possession of a hive at a moderate outlay, that in his experienced hands can be adapted to meet the peculiarities of every case and season. This leads me to narrate some observations how storing of honey in the super may be promoted, and the breeding of the queen encouraged by a change of system I have latterly adopted, which, for want of a better term, may be styled "adapting." From the experience I have had of strong colonies wrought on the storifying plan, I have noticed in some of my Stewarton-hives—for instance, when the breeding-boxes had attained a height of 18 inches or 2 feet, a disinclination in the tired honey gatherers to elbow their way up such an altitude to the super, and rather avail themselves of the handy vacated brood-cells in, say, an upper breeding-box, thereby unnecessarily protracting the completion of the super. This temptation is also enhanced by the predilection of the queen to take up her quarters in the box containing the greatest quantity of brood, to the partial neglect of the others, besides a general shyness to pass from box to box. Take, for instance, a set of three breeding-boxes. At the end of the season, in addition to the super, the upper will be found filled with sealed honey, a fair supply with the queen, and the bulk of the bees in the centre, and little but empty combs with some bees in the lower. No doubt a partial deprivation might be made from the upper box, still as the comb had been bred in, it would only be valuable as run honey. To obviate these evils I have devised a means which, so far as I have acted on it, has given me satisfaction. Suppose a good prime swarm hived in any of the boxes already described (the octagon is preferable), and after a few days another in a box of like dimensions, placed under the first the evening of swarming. All the slides drawn and an amicable junction effected, admission being given at the same time to the super by drawing each end-slide only of upper box. The following morning the lower box to be withdrawn (by which time the bees will, in all probability, have ascended to the super), and in lieu of it substitute an eke one-half the depth of the box, having windows of similar length, and one-half the depth, handles and entrance the same, with four little buttons or bars to prevent displacement. Across and flush with the top of the eke, place a half-inch-square support to the combs an inch into a half-inch cut in each end to receive it. The box-entrance will, of course, be closed, the bees passing out through the eke. The bee-keeper to use his discretion in supplying another eke so soon as the exigencies of the case imperatively demand, and so on to the end of the season. Should both swarms be large, and particularly if the first has had a week or more start, filling the box a considerable way with comb, it may be safer to prevent brood in the super, placing two ekes at first in lieu of the second box, or better, one eke the full depth of the box. A good deal must be left to the judgment of the apiarian in handling the hive to meet various peculiarities as already hinted at. The advantages of this system are as follows:—When a colony is naded in the usual way, a *large*

addition is at once made to the space, larger, perhaps (unless the weather be all the more favourable), than their immediate wants demand. Bees generally show a hesitancy in commencing in a new compartment (sometimes rather swarm than do so), except the weather be hot and the hive unusually crowded. When once possession has been taken, a number of the gatherers are called off work to cluster together so as to raise the necessary heat for comb-building. By the system I have adopted, the additional space is supplied more gradually and less perceptibly to the bees, the comb-builders carry on their work continuously down, more in keeping with their habits, and the order of operations thereby suffers no change. The hive is thus divided into two compartments only, a breeding and a storing, the queen having unrestricted range over a much larger area of comb, will have the effect of stimulating her breeding powers, and the space occupied by brood will be gradually extended downwards as the combs are lengthened. So soon as young bees leave their cells she is at hand to re-occupy with eggs. The honey gatherers are less tempted with vacant cells to stop short of the super, where a greater deposit of honey in pure comb more rapidly stored, is the result. The body or breeding space being thus appropriated in a great degree to its intended use, and the bulk of the store removed in supers, the hive will not attain an undue altitude as with storifying-boxes. The saving in employing ekes instead of boxes is apparent. By severing the comb with a strong thread or a comb-knife, the hive can be reduced at any eke, a spare one placed below to keep the comb off the board, the separated portions made available for another colony, by simply screwing on a board above; a partial deprivation could also be made from the top box in the same manner, should the weight justify the proceeding, or be made useful in any way almost as easily as storifying-boxes, the comb remaining securely attached to the cross supports.

COLLATERAL-HIVES.—Suppose we invert a common straw or any hive, where do we invariably find the honey stored? The merest novice is at once prepared to answer—The upper portion of all, and the end combs exclusively, are devoted to this purpose. Additional storing space is, therefore, appropriately given above by supering, as in the storifying, and at the sides, as in the collateral system. The nearest approach to a complete hive, strictly copying the procedure of the bees, is one combining in a measure both, such as I am about to describe, offering equal facilities for either. Again, What proportion should the space set aside for brood bear to that for store, taking the natural procedure of the bee as our criterion? Not, certainly, Nutt's of one of brood to two of store (exclusive of bell-glasses); the reverse would be much nearer the truth: hence the disappointment by swarming, queens breeding in end-boxes, as previously mentioned, and the blasted expectations of the possessors of his hives regarding the great harvesting prospects held out by that author, with, I am afraid, the too great partiality of parental fondness. Whether it be that our cold, variable, northern climate is less suited, causing the bees more readily to abandon the end-boxes than in the more genial south, I never yet met a Scotch bee-keeper who spoke favourably of the system.



Some years ago I constructed collateral-hives, saw and endeavoured to remedy their defects; but never yet tested them so fully, or pitted them against the storifiers. Under similar circumstances, to pass a decided judgment, I will describe for the benefit of such of your readers as have a fondness for the system what I have done in the way of improvement, and should they think of adopting my hive with the advantage of a superior climate, it will afford me pleasure to hear of their success in these pages. Adopting Nutt's as the basis, which consisted of three

boxes, a central or pavilion as he styled it, 1 foot square, by 9 inches deep, communicating with two end-boxes of like dimensions, by a half-inch way at bottom, and another perpendicular one carried up the centre of each end with dividing-tins and other lesser details. The main defect of this hive is a difficulty to induce the bees to commence operations in the side boxes, as they will often swarm in preference. My first expedient was to close the central entrance, and open the one in the side-box, thus forcing them to pass through it, affording at the same time a fair opportunity of inspecting the "shop to let." This if resorted to in time, and the weather unfavourable for swarming, may have the desired effect; but should they have previously determined to go, no amount of coaxing will force them to remain.

I then met this defect by the original notion and effectual plan of fitting sliding ends to all the boxes, thereby saving the dividing-tins, &c., proceeding as follows:—Suppose the pavilion crowded, I carefully draw out the end of the central and side-box, thereby throwing both into one; it is at once looked on by the bees as but an ante-drawing-room after all, and they extend themselves into it, and commence work on the guide-combed bars. When once fairly established therein and comb appearing, I as carefully slide in the ends to within half an inch of the front, this serves in lieu of Nutt's central half-inch-way, and I think a decided improvement, for this reason:—Any one looking through a back window must have noticed the partiality of the bees on entering, to turn up on and run along the inner front of the hive. The two boxes being placed exactly parallel, they without obstruction pass along from the front of the one to the other. Whereas by Nutt's mode they were obliged to go round to the central-end opening; part of the heat would also escape through this opening into the ends; by the other a greater quantity of pure air will seek its way from the entrance to the sides, and the breeding central portion be kept more compact.

The first set of collaterals I constructed were of Nutt's proportions. Finding the side-boxes too large to be fully completed, I halved their depth, substituting two boxes $4\frac{1}{2}$ inches instead of one 9 inches deep for each side, with the further improvement of six $1\frac{1}{2}$ -inch bars on the side, and seven $1\frac{1}{2}$ -inch on the central-box. I was thereby enabled on finding the latter too small to nadir with one of the side and super with the other, working the remaining pair collaterally. Being fully convinced subsequently of the disproportionate smallness of Nutt's central-box, I have increased the size to $15\frac{1}{2}$ inches between the ends, and $1\frac{1}{2}$ inches back to front, both inside measure, retaining the nine-inch depth; the top formed of eight bars (six narrow and two broad); window of proportional depth and entrance, all as previously described for the square wooden hives. The way I manage the sliding end is so simple that any amateur can easily apply it, and construct from the full description a set for himself. When the front and back boards ($15\frac{1}{2}$ inches by 9 inches), are all neatly dressed and squared, the ends made particularly smooth with the hand-plane, an entrance and space cut for the window-glass, take two bars (bar-and-slide hive), 16 inches long, notch out 1 inch from the under side of each end as if intended to lay on the top, place the two boards on a flat, smooth surface, and after fitting a slide into the lower groove of each bar attach the bars to the back and front as low down as will allow the slide to work easily. This forms my half-inch-way at bottom. When the bars have been firmly screwed the boards will stand exactly 11 inches apart, the top bars can then be placed and screwed to keep all firm. Prepare the sliding end of one-quarter-inch dressed, a check top and bottom front edge, the latter working into the upper groove-end bar, the former in a bit of reversed slide sprigged on above. There is a slip of wood nailed on the front end to prevent the end sliding too far, and a little narrow button of wood on the inside top to prevent it slipping inwards. It projects an inch behind for a catch to draw by, and is roughened on the inner side as before mentioned. The wood dressed so thin must be well seasoned to prevent warping. To further guard against this, I generally fix with small screws when the end-boxes are not in use. The inner ends of the side-boxes are to match, and precisely similar, their outer ends of three-quarter stuff nailed fixtures, of course. They should not exceed (what-ever less), 10 inches from end to end, this allows room for five $1\frac{1}{2}$ -inch bars, they can either be of a similar depth or in pairs. Should they be anything neatly constructed when the ends are drawn, the inside of the roof, centre, and side will be exactly on a like without obstruction, save the little checking-button already mentioned, and the nearer the end-bar in the one the other

the better. A full-sized Stewarton-super can be placed on the top of the central, admitting through each end-opening only.

On the shelf where this hive stands, there is cut out below the centre of each end-box, a portion 9 inches by $5\frac{1}{2}$ inches, lengthways. These pieces work downwards with a pair of small brass hinges, kept up when at rest with a button bolt fitted on below; over this space perforated zinc is nailed. When the heat of the weather or the state of the hive calls for ventilation, it is afforded by means of these little falling trap-doors. A similar piece—say 10 inches by $5\frac{1}{2}$ inches, placed the other way, under the central-box, with a knob behind pulls out as a drawer to admit the earthenware feeding-trough 9 inches by $5\frac{1}{2}$ inches.

I never found ventilation easily effectible or useful, except below; any benefit that way from tubes as in bell-glasses is chimerical, the first act of the bees being to stop up the perforations; not so below. In some of my roof-hives I have found brood extend to nearly the edge of the zinc, all above and forward from it entirely free.

The advantages of my collateral-hive as now explained, must be apparent, from the facility with which the bees can be admitted into the side-boxes and supers simultaneously. The apiarian has a good opportunity of testing their partiality for either mode at one and the same time, the whole being so much in keeping with their habits, their energies are fully tasked, rewarding during a favourable season, with an abundant honey harvest. I do hope more than one of your southern apiarian readers may people this hive with a couple of prime swarms in the coming season, and report progress.

OBSERVATORY-HIVES.—It having been proved that bees work equally well in light as in darkness, the smoothness, closeness, and coldness of the glass unfit it for taking the place of wood for general use; and their susceptibility of being influenced by all the variations of light, must, of course, cause an increased consumption of store, and is prejudicial to their accustomed dormancy. Still a single observatory may be allowable as a curiosity placed in a staircase window—for instance, fronting the back or gable of a house. In such a situation, from the constant stir of busy life within, it is an object which never fails to attract attention long after the beauties of the most graceful piece of statuary palls upon the sight. I have one exactly such as I have described, for my central collateral-hive, with this difference, that there are placed in front two large thick panes of glass, 13 inches by 7 inches, the inner sunk flush with the frame, the outer in a rabbit, leaving a half-inch space between, the same in back. Finding it close, to promote ventilation, in room of the slides, slips of fine India matting tacked to the under side of a portion of the slide to draw by wire is introduced—this answered nicely—a six-inch thermometer is behind. This hive stood exposed to the full light all the winter, in a staircase window, north aspect. At the commencement of the long frost, on bringing the top covering over the front, they set up such a roar of displeasure at being deprived of their accustomed light, that I withdrew it. The thermometer indicated 25° of frost on the morning of the 24th December (as previously reported); yet, notwithstanding, the bees came through in good order.

Having already dilated on bee-hives with a diffuseness sufficient to lay the foundation of a new bee manual, or subject the writer to the suspicion of harbouring a latent wish to be assumed as inventive partner in Messrs. Neighbour & Son's High Holborn concern, I must reserve till a future Number some remarks on what may be termed their appurtenances.—A RENEWABLE BEE-KEEPER.

(To be continued.)

IRON PIGEON'S NEST.—At the meeting of the Sheffield Literary and Philosophical Society, on April 9th, Mr. Stirling Howard exhibited some horseshoe nails as a sample of two gallons, by measure, of the materials which a number of Pigeons had carried from a blacksmith's shop, and used to make their nests. The facts, as communicated by Mr. E. S. Howard, of Woodside, are briefly these:—"Over one end of the blacksmith's shop is a rude loft, in which are a number of boxes, the domiciles of the Pigeons. The nails, which were taken from canvass bags and other receptacles, are of the ordinary horseshoe kind, of various sizes, some new, others old and crooked. They were, however, laid with some regard to comfort, inasmuch as the points were not allowed to project upwards, but without the admixture of softer materials. This is the more singular, as there is abundance

of straw, shavings, &c., in the neighbourhood. On these 'iron beds' the birds had laid their eggs, which were just ready for hatching when the discovery was made of the use to which the nails were applied. The nails when removed filled a watering-can holding about two gallons, one of the nests containing more than a stone weight. The eggs were destroyed. The Pigeons are of the ordinary kind, but some of them have a cross between the 'Carriers.'"

MILCH GOAT.

FEED them as you would a cow or sheep; milk them at regular times, and strip them dry. They will eat almost any kind of food. Mine was a common Irish Goat, cost 21s., and gave three pints of milk at a meal. Tie them up while milking, and milk from behind the leg. They are subject to lice: a little oil rubbed on the back is all that is required to remove the vermin.—W. S.

GOLD AND SILVER FISH DISEASED.

I THINK "J. B." will find no remedy for the slime upon gold and silver fish, but that of catching them and wiping them carefully (so as not to injure the scales) with a dry, clean, soft cloth. I have found this an excellent remedy when mine have been similarly affected.—GEORGE M. BURTON, Southtown, Larnmouth.

"**THE** fishes with hard skins have, however, one advantage over the soft-skinned fishes, to a greater or less degree—they are not so much troubled with parasitic animals adhering on them. To sickly fish do these parasites principally adhere, just as the bill-stickers in London select a tumble-down house, or else premises in Chancery, to stick their paper parasites, in the shape of advertisements, upon. At Teddington Lock I caught one day, this year, three barbel. I observed that the bellies of these fish were covered with little, round red spots, as though they had been pricked with a needle. I could not understand what these spots were till I caught the third barbel; on to its belly was still adhering a little leech-like beast, that curled himself into a ball when touched, like a woodlouse. With some difficulty I got him off the barbel's belly, and in the place where he had been sucking was one of these little round red spots. The mystery was thus fully cleared up: this parasite had an amazingly sharp pair of nippers, wherewith to pierce and hold on to the barbel's thick skin.

"When fishing at the weir, at Thorney Broad fishery, near West Drayton, in the month of May, a gentleman who was angling above me cried out, 'Look out, there is a great fish coming down the weir!' and sure enough there was a fish coming down in the rapid stream, tail foremost as fast as it could. I just managed to catch him with the landing-net, and found that he was a large roach, weighing $1\frac{1}{2}$ lb. The poor fish had been wounded in the back, probably by a punt-pole, and was in a bad way. It was quite covered with the same kind of parasites that I found on the dead polling bait, so that these little creatures perform in the water the same office that the flies, by means of the maggots, do on land: they devour the offensive animal matter which would otherwise pollute all around.

"The gold fish in the round pond at Hampton Court are also much troubled with a parasitic fungus, which grows upon them; but I never had an opportunity of examining one out of the water.

"Mr. Hall tells me that his fish are much troubled with this fungus. Occasionally they are attacked with a disease of the eye, causing it to bulge out like a small bladder, and sometimes the scales to stand up. The most fatal complaint they have is a sort of ulceration, which takes place on the body on which this vegetation occurs, and shortly covers the fish; after which very few recover. This is, doubtless, a vegetable fungus. Near Hammersmith there are several floodgates communicating with the Thames, round which the roach and dace collect; these fish are covered with this parasitic fungus. It ultimately causes the death of many of them, as it becomes adherent to the gill substance, and prevents their breathing."

In answer to "J. B." I send you the above extract, from "Buckland's Curiosities of Natural History." I cannot send a personal remedy; but I surmise the Thames water to be at the

bottom of the mischief. I myself have observed the diseased state of the fish in the tank at Hampton Court Gardens, which must nearly resemble "J. B.'s;" and just possibly it may be supplied with the Thames water also, in which, were I a fish, it would be difficult for me to maintain a healthy state of existence. It would be well if "J. B." could supply his tank from some other source.—UPWARDS AND ONWARDS.

THE CANARY AND THE BRITISH FINCHES. THE CHAFFINCH.

(Continued from page 71.)

THE French and Belgians are great fanciers of the Chaffinch, and highly prize its song. They keep them in small wooden cages, having only wire at one end, where it is slightly bowed to contain the water. The birds, after being caught, and as soon as meat is off, are deprived of the sight of one eye, and when accustomed to find their food and water the sight of the other is also destroyed by means of a heated needle. These poor blind captives being less easily frightened sing very much; but I abhor the cruelty, and detest the sight of these miserable-looking prisoners in their little dark cells.

The old birds when taken are often very shy, and do not sing the first season. Nestlings when reared by hand are very familiar, and may be taught any of the approved strains; they also vary their song more, but, to my fancy, are less bold and original in execution than old-caught birds. The best Chaffinch I ever remember hearing was one I had at St. Pierre les Calais in 1844, and which was captured in rather a strange manner. A pair had commenced building in an apple tree near the house, and while the servants were at dinner the pair flew into the kitchen—one alighting on the nursemaid's head and the other in her soup, when she grasped one in each hand, and brought them to me. I placed them in a cage, but the cock did not sing that season, and in the autumn I let the hen fly. The next year the cock was kept in a room with many other birds, but I did not notice his singing. The third spring, however, he broke forth in the most delightful rolling melody I ever heard in the way of bird music. He had a large cage to himself, and he continued in full song all the spring and summer; he would repeat and vary his song several times in succession without stopping, pealing forth his lay in a full clear tone. At the end of the first limb he would drop his voice into a murmuring warble, and then again pour forth his song with redoubled energy.

I have reared several nestlings that proved fine singers, and added snatches of other birds' songs to theirs; but none sang so bold and clear as the old Calais bird.

Dr. J. M. Bechstein, the German writer on birds, who was himself a great fancier, has described twelve songs of the Chaffinch as noticed by fanciers in that country. So great is the fashion for these birds among the Thuringian cutlers, that they will sometimes subsist for a fortnight on bread and water in order to purchase a good song bird; and examples have been known of persons going from Ruhl to the Hartz mountains to catch a good songster, as well as of a cow having been given for a first-rate singer; hence the German proverb, "The Chaffinch is worth a cow."

The favourite song is termed the bridegroom's song and runs—"Fink, fink, fink, horst du, willst du, mit dem, Brautigam zierem." In Saxony, particularly in Erzgebirge and Vogtland, the "Reitzug" cavalier's song is preferred.

The wine song, or "Fritz, fritz, fritz, wilt an mit zum Weingehn," is also a great favourite in Ruhl. Several others, as the goodyear and the double song are mentioned, but the above are, I trust, sufficient to illustrate the German reading of Chaffinches' songs. In conclusion of this matter, I will make one more extract. "When a bird only sings one of these songs so is he the more prized, the slower, more distinctly, and deeper his singing; and still more admired if at the end of each song the bird calls 'Pink,' which the amateurs designate the amen."

Pied and even white Chaffinches have been recorded as being met with, but very rarely.

M. Hervieux mentions them as one of the birds that will breed with the Canary. Dr. Bechstein says, "It is an acknowledged fact, that they will breed with the Canary, and that they have paired with the Greenfinch and Yellowhammer." I myself had a Chaffinch raised from the nest that paired with a hen Canary. The courtship was a very rough one, the cock often dashing after his mate, catching her by the crown of the head and holding

her thus suspended. The hen, however, unfortunately proved barren, and I could not prevail on the Chaffinch to take another mate. A Chaffinch is recorded to have lived in confinement twenty-four years.

In summer and autumn the young branchers and old birds are caught in clap-nets when on flight. In winter, when they draw near to the houses, or congregate in the farmyards, I have caught them in small wooden traps made like a box of old weather-stained board, baited with seeds buried in the earth level with the ground, and set like boys do the common brick traps. The Chaffinch is a jealous bird, and in spring each male takes a beat which he claims as his hunting-ground, and drives all others off. This habit has been taken advantage of by bird fanciers to capture the cock when in song at the commencement of the breeding season; to effect which it is necessary to be provided with a song bird as a decoy. These birds are moulted off early like the Linnet, in stop-boxes. A glazed frame in which two or more Chaffinches are enclosed, each in a separate back cage, and thus kept for a time in an equitable temperature, and fed or rather fattened on an extra allowance of hempseed, the moulting is advanced and the birds come earlier into song than they otherwise would. The trapper is also provided with a stuffed Chaffinch so arranged that by means of sharpened wire it can be stuck against a tree; and in the same way a twig besmeared with birdlime is stuck above the stuffed bird or "stale;" the call bird being placed below, the operator hearing a bird whose song pleases him, arranges his decoy in a convenient place and retires a short distance. The birds begin to sing against each other, and the wild male enraged at the presumption of the call bird for singing in his domain, and mistaking the stale for the intruder, dashes down at it and becomes entangled by the limed twig. A somewhat similar arrangement is practised by the German fanciers, a forked stick attached to the back or tail of a live bird which is placed near the wild songster, and he dashing down to attack and drive him off is detained by the birdlime, or a braced bird is pegged beneath the tree, and limed twigs are so arranged round it as to capture the wild one when he charges the decoy.—B. P. BRENT.

(To be continued.)

SCARCITY OF STARLINGS.

YOUR correspondent complains of the small number of these birds seen in Cheshire. I have made the same observation in Gloucestershire, which I attribute partly to the excess of cold in December and January last; and also to the number of juvenile sportsmen and idle men, with guns in their hands, during the whole of the frost. Not only are the Starlings scarce, but the poor Thrushes and Blackbirds also are reduced to less than half their usual numbers; and we lose a great portion of the beautiful notes of the two latter—which (next to the Nightingale), charm us during seven or eight months in the year. Such a slaughter of singing birds I do not remember since the year 1838, a frost which lasted more than six weeks.—H. W. N.

ABUNDANCE OF STARLINGS.

IN the neighbourhood of Wickham Market, Suffolk, I have seen them in very large flocks this month, and there are plenty about the farm buildings and pollard trees.—W. S.

HERE (Claughton, near Birkenhead), they have seemed more numerous than usual all the winter; and up to the present time. I suppose the severe weather caused them to seek the neighbourhood of houses for food and shelter, as they were scarcely ever absent during the winter from the projecting roof of a tall house near me, and now in mild weather they seem to have less shyness, and come nearer the door or the windows looking on to the lawn than usual—in fact, comport themselves with much the same boldness as the common house sparrow.—E. Q.

DURING the late severe winter I missed the flocks of Starlings that were wont to disport themselves in former winters, like small clouds buffeted by the winds, over the trees in Blenheim Park; but, most likely, ere your correspondent, "E. M." reads this, the usual number of happy couples will have arrived at the church, and to domicile themselves in their usual haunts in

Gawsworth—at least it is the case here (Woodstock), within this last week or two: and wherever they may have been, they appear in uncommonly good case, chattering, whistling, and snacking their bills, as much as to say, "Isn't this life and this fine weather really enjoyable, my spouse?" What beautiful-plumaged birds the males are! But the fraternity of them are dirty fellows in the immediate vicinity, when they were allowed to build in the roof of one's house. I take care to get the masons to stop all holes in the roof; but then there are plenty of trees with cavities in them—too many I am sorry to say for the sun shining on to this garden—to accommodate their impudences.—EDWARDS AND ONWARDS.

STARLINGS are very plentiful in this part of the country (Cardiff), they were also here in very large numbers during the whole of the severe weather we had last winter. I intend rearing some of those beautiful birds this season. Will you kindly inform me if you publish, or know of any book that is published, which could give me some useful information as to how the young birds should be treated?—W. J.

WITH regard to the scarcity of the Starling, I beg leave to say that I have found it just the reverse. I have not seen so many about here for several years as I have noticed this spring. They fly about in large flocks and build in precisely the same places as before. I have shot a good many, and find them in good condition and feather.—G. C. WHITWELL, *Kendal*.

VARIETIES.

THE GHOST OF AN IMPRESSION.—If a wafer be laid on a surface of polished metal, which is then breathed upon, and if, when the moisture of the breath has evaporated, the wafer be shaken off, we shall find that the whole polished surface is not as it was before, although our senses can detect no difference; for if we breathe upon it, the surface will be moist everywhere, except on the spot previously sheltered by the wafer. Again and again we breathe, and the moisture evaporates, but still the spectral wafer re-appears. This experiment succeeds after a lapse of many months, if the metal be carefully put aside where the surface cannot be disturbed. If a sheet of paper on which a key has been laid be exposed for some minutes to the sunshine, and then instantaneously viewed in the dark, the key being removed, a fading spectre of the key will be visible. Let this paper be put aside for many months where nothing can disturb it, and then in the darkness be laid on a plate of hot metal, the spectre of the key will again appear. In the case of bodies more highly phosphorescent than paper, the spectres of many different objects which may be laid on in succession, will, on warming, emerge in their proper order.

MALT WINE.—Notwithstanding the introduction of Cape wine, and the still more recently increased importation of those from France, home-made wines have kept pace with these imports; and as their manufacture becomes better known, there is no doubt but their qualities will be improved, and the prejudice which condemns home-made wines without deigning to submit them to a trial is fast wearing away. Combined with that, the manufacture of these things is becoming better known; and, doubtless, when they become still more so, and when they assume the proportion of some of our breweries and every point in the making and fermentation be as well known as that of our national beverage, we may reasonably hope to compete with the foreigner in producing an article of greater purity than his, and, though different in flavour, still equally agreeable, and when the palate becomes used to them, they will be immeasurably more wholesome. But it will likely be some years yet ere any extensive alteration in the mode of making these wines be brought about, the amateur, whose means are not, perhaps, equal to his hospitality, will, doubtless, be glad to learn a way whereby he can treat his friends to a glass of wine bright, agreeable, and strong, and at less than one-fourth of the expense of the foreign article. I purpose, therefore, to give a few recipes of the mode by which I have been successful in making wine; and I have ascertained from a friend still more noted for the contents of his cellar, some little points on the management of his wines, which I have his authority to impart. Commencing, therefore, with

one of the cheapest and best of home-made wines, I will detail the process by which it is made. At a time when the brewing is going on (for malt wine can only be made then), take 10 gallons of sweetwort, 10 gallons of beer that has been boiled with the hops, and has cooled and received some yeast, and 10 gallons of soft water; boil this water and the sweetwort with 45 lbs. of loaf sugar; and when it is nearly cool, mix it with the tunned beer, and let it stand eighteen hours in a tub; afterwards put it into a cask, and let it work about four days, filling the cask up with liquor that has not been in it before—not the yeasty portion that works out, which would prolong the fermentation—a thing much to be avoided; and as soon as it is about settled bung it down, giving it vent now and then by a vent-peg. The cask ought to be a fresh-emptied spirit cask, or a wine one will do. After it has stood a fortnight or so, put in 10 lbs. or 12 lbs. of raisins, and bung it down tight, only occasionally looking to the vent-peg. At the end of twelve months it will, if all be right, very much resemble sherry, and would be much improved if bottled off then; but we generally allow the bulk of ours to remain in the cask, and it improves much in three or four years. If it be too sweet, keeping will correct that, and the sweeter it is the longer it will keep. Observe, no spirit is added, neither does it want any—it is quite strong enough without any brandy; and as there is no acidulous fruit used in the making of it, the sharpness which fruits often give to wines is avoided. Some little judgment is required in proportioning the tunned beer: for if this be unusually heavily hopped, less of it must do; at the same time wholly sweetwort is also faulty. A smaller quantity than the above can easily be made, for as it is plentifully charged with fermenting matter from the tunned beer, it is sure to work, and a small quantity sooner becomes ready for use: but it is, perhaps, not quite so good, as, in fact, few wines made in small quantities can hardly expect to be so good as when more is made at a time. But when we can equal the foreigner in the extent of our operations, and also know the various points conducing to excellence, we may look forward to equalling him in the article produced.—AN OLD SUBSCRIBER.

OUR LETTER BOX.

DUCK'S EGGS WITH THIN SHELLS (*A Constant Reader*).—The shell of the Duck's egg is the result of faulty secretions, and we know not what medicine to advise for a Duck, because in our experiments on them we have tried calomel in doses from one grain to a teaspoonful without any effect. We know that on some waters the Ducks lay eggs with thinner shells than on others, and we know if they are very fat it is unfavourable to laying. We know not how you have been feeding; but we advise you to leave the bird full liberty, and to feed her on nothing but whole oats. The egg is only unfit for sitting because the shell would not bear it.

WENS WITH WENS ON THE CROP (*Constant Subscribers*).—Your hens are very much diseased, but judging from your description they need not be killed. They are suffering, probably, from fever, and drink immoderately; this causes the crop to hang down, and we fancy this is the wens you mention. Give castor oil, every day a tablespoonful, feed on stale bread soaked in milk, allow only a little water four times a day, and as soon as they have drunk take it away. We always advise that diseased fowls should be separated from any others. If they really have wens, an operation will be necessary.

DUCKING COCK WITH CONTRACTED TOE (*Subscriber from the First*).—The cock's toe bent under the foot is a very bad case, but not incurable, unless under one circumstance, which we will describe. If the thigh of the diseased toe is wasting, and less than the other, and if the knee swells, there is no hope, and it will be a charity to kill the bird. If such is not the case, give him castor oil every other day, feed him on oatmeal and bread and milk, and be careful that he never treads on anything but grass, hay, straw, or dry gravel or earth—no stones, bricks, or wood.

STOCKING AN OBSERVATORY-HIVE (*R. J. W., Preston*).—A second swarm should be lived in a common straw skep and knocked out on a sheet immediately in front of the uniomb-hive in the evening of the day on which it is used. The observatory-hive having been slightly elevated from its floor-board, a stream of bees should be directed towards it by means of a twig or feather. After all, the process is frequently very troublesome, and for this reason we avoid it altogether, by lifting our uniomb hive with moveable bars, which we place in a box, and having hived a swarm therein, and set it on the spot intended for the uniomb-hive, leave it undisturbed during three or four days, by which time good-sized combs are usually formed. Choosing the middle of a fine day, we lift out the bars with the adhering combs and bees, arrange them in the observatory-hive, and the job is complete. Glasses should be put on as soon as the stock-hive is pretty full of bees. The latter end of April is about the right time. Better give room too early than too late.

GOAT-KEEPING (*B. W.*).—You will see a short communication upon this subject in our columns to-day, but we hope to have more detailed information on the subject, and shall be obliged by any one sending us the results of his experience. We believe one obstacle in the way of Goat-keeping is the need of keeping a buck Goat as well as milch Goats. If several persons kept Goats in one vicinity, the fragrant gentleman in question might be joint-stock.

WEEKLY CALENDAR.

Day of M th	Day of Week.	MAY 7—13, 1861.	WEATHER NEAR LONDON IN 1860.				Sun Rises.		Sun Sets.		Moon Rises and Sets		Moon's Age.	Clock after Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	m.	h.	m.	h.	m.	h.			
7	Tu	Erinus alpinus.	29.856—29.566	63—46	E.	·02	23	af 4	30	af 7	57	2	27	3 39	127
8	W	Lunium rugosum.	29.628—29.498	64—46	S.W.	·01	21	4	32	7	14	3	28	3 43	128
9	Th	ASCENSION. HOLY THURSDAY.	29.806—29.565	66—27	S.W.	·05	19	4	33	7	sets		1	3 46	129
10	F	Pumaria Borebellii.	29.823—29.506	64—50	S.W.	·11	18	4	35	7	44	8	1	3 49	130
11	S	Orobis tuberosus.	29.747—29.700	66—48	S.W.	·12	16	4	36	7	45	9	2	3 51	131
12	Sun	SUNDAY AFTER ASCENSION.	29.730—29.611	66—49	S.	1·14	15	4	38	7	37	10	3	3 52	132
13	M	Sweet Woodroff.	29.795—29.690	67—37	W.	·02	13	4	39	7	20	11	4	3 53	133

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 62° and 40° respectively. The greatest heat, 81°, occurred on the 6th, in 1830; and the lowest cold, 21°, on the 8th in 1855. During the period 146 days were fine, and on 92 rain fell.

REFINED TASTE IN FLORICULTURE.



FTENER than once lately the question has been put to me—Do you consider that the education of a taste for any particular flower adds to your pleasure? and were you to strike the balance between the pain that you experience when a flower does not come up to your idea of what it ought to be, and the enjoyment that you have when

the reverse is the case, which would preponderate?

The answer to this opens a wide field of inquiry.

It has a great deal to do with the philosophy of human life—the relative value of earthly and spiritual things, and the present condition of our race. If the object of such a question be to depreciate the cultivation of taste, the education of the eye or ear, then “I will have none of it;” for, carried out to its legitimate conclusion, it would make the savage state the *beau ideal* of human life, and as effectually “snuff out” civilisation as the Pope would do. For, take the very commonest subjects—the mere speaking of our language: One who has passed through what is called a liberal education is most grievously racked with torture when he hears unfortunate letter H sacrificed, and people talking about “heggs,” “osses,” “am,” &c. Are we to say, therefore, that the pain he thus suffers would be at all to be compared to the enjoyment which he can alone appreciate when he hears, in clear, mellifluous, and classical language, our good English tongue well spoken. See a number of persons on Easter Monday going through the National Gallery, or the rooms where the Sheepshanks and other Collections are contained at Kensington. They think them pretty; and any of an amusing kind—some little scene of domestic byplay—is sure to have a crowd around it, who are admiring, not the artistic manner in which it is executed, but the naturalness of the scene. Follow that other quiet-looking individual—he will soon exhaust your patience if you are not yourself a connoisseur. See how he lingers over one picture, how vacantly he gazes on it, what brightness fills his eyes as he looks at each point. Ask him, if you will, what it is that so engages his attention—it is, perhaps, some clever management of light and shade, the delicate manner in which a sunbeam throws its light upon the floor, on the airiness of some fleecy clouds in the distant sky. What if he does come across an inferior production now and then and writhes under it, surely he never for a moment balances that with the thorough enjoyment he has experienced an hour before. And without much trenching on what is my own peculiar sphere, may I not ask, Is it not so in the far higher and more important concerns of religion? There can be no doubt that he who is really and sincerely engaged in the Christian warfare does feel more acutely the power and acting of sin than he who is merely contented with a cold and lifeless profession. But will the true Christian, with every feeling so finely strung, that

all discord jars his frame, say for a moment that he would forego the true and abiding peace which he enjoys because of that? Oh, no!

But I have wandered, perhaps, overwide from my subject; for, as I said, it enters largely into the whole philosophy of our being, and to deny the advantages of a refined taste would be to second the vagaries of that southern writer of whom Dr. Mackey speaks in his “Life and Liberty in America,” who wrote elaborately to prove that not only was slavery not wrong, but that it was the happiest condition of man, as all his wants were provided for without anxiety on his part.

But there is not only the enjoyment of looking at these things with a refined eye oneself, but there is also that equally great one—looking over them with brother craftsmen, who appreciate their properties as much as yourself. I have, let us say, a fine frame of Pansies in full bloom. Neighbours hear of it, and wish to see it. By all means! One feels a little pride on being able to point out some fine-looking and well-grown flowers, and hearing the exclamation, “How pretty!” “What a size!” But make way, ladies and gentlemen; here is one, who, not far off, has another collection. We sit down on the edge of the frame; we talk—some would say wildly—long over each individual flower; speak of large eyes, rounded and smooth edges, depth and intensity of colour:—time flies rapidly on, and we really wonder it has taken so long. Nay, what may seem stranger still—I have sat with friends on the edge of an Auricula-frame for hours, when not a pip was to be seen, quietly enjoying a talk about their properties, handling the gems of the collection, and speculating on the probable appearance in the next spring; and a quiet, peaceful enjoyment it was—it is needless to say utterly incompatible with an uneducated taste.

My object in writing thus is not merely to answer an objection which may be sometimes made to the pursuit of floriculture strictly so called, but at the same time to urge the positive side of the question. The advantage of cultivating some one particular class of florists’ flowers—Pinks, Pansies, Auriculas, Carnations, Dahlias, whatever it may be—I am sure would afford to many who have tried it great pleasure. The facilities for obtaining collections are now great. Florists are not the churls they used to be—they are ready to take and give, to exchange their surplus stock; and the diffusion of information on every subject of the kind leaves no room for ignorance, which must needs be wilful if it exist at all. Amidst the cares, business, and turmoils of life we all need something at times to turn to; and even where the pleasures of a garden—which, as Lord Bacon says (Essay xlv.) “is the greatest of human pleasures, and is the greatest refreshment to the spirit of man, without which buildings and palaces are but gross handiworks”—cannot from circumstances or position be entertained, there may yet be the management of a little frame filled with some favourite flower, whose care and culture at all times will afford the greatest enjoyment. I am not in the position of the fox who lost his caudal appendage and recom-

mended his friends to get rid of theirs, but rather of one who, having for many years served an apprenticeship to the craft, can confidently recommend it as the source of much true enjoyment both to myself and others.—D., Deal.

THE EXPERIMENTAL GARDEN.

POLYANTHUS CROSSING—RULE IN CROSS-BREEDING—NEW RIBBON-BORDER OF GERANIUMS.

THE owner of the Experimental is no more. The place is advertised for sale, but the executors allowed such plants as were not yet in the hands of the public to be removed to my private garden, and no contributor will be the loser by the mournful event but myself. It was in anticipation of this change that I announced, some time since, that I could not receive any more seedlings to prove. However, as every book and periodical which treats on gardening, every nursery and garden which keeps the subject alive before a willing public, and every exhibition, meeting, and committee which awards prizes for merit in our line, helps to keep up trade, to make a demand for gardeners, and to increase the innocent enjoyments of gardening pursuits, it is not good to let down one of such books or periodicals, nor one of such nurseries and gardens, nor one show, nor one opportunity of keeping the wheels and the wheel within the wheel in active motion: therefore, I shall in future devote my private garden on the principle that every little helps. What I see and hear I shall say; and what I shall think without seeing or hearing, I shall suggest to the end of the chapter.

Well, my "Good Gracious" has, this spring, more than ever proved that no kind of Polyanthus is so telling in our new arrangement of spring flowers as a yellow Polyanthus. No matter whose strain it may be so it is yellow, it is more valuable now than any, or all, that I have heard of or read about, from the days of Gilbert and his father-in-law to the present. My "Good Gracious" was not my strain, it only came by chance as did all Polyanthuses that ever I knew; but it is by far the strongest and the best bloomer I have ever seen, and the easiest to raise a good stock from, and to keep the plants after you once have them.

I have not the slightest merit in producing it, nor any interest in the sale of it, but I am bound to say it is far superior to any other kind of yellow Polyanthus for ribbon-lines; and in a few years, when it will have rest from excessive propagation, it will have the same run as the Shrubland Rose Petunia and Punch Geranium, and in all probability it will see them both out. Remember, the name was suggested to my friends at the Wellington Road Nursery from the exclamation, "Good gracious! where did you get such a Polyanthus as that?" but no one has since, or could since then, have seen such a stalk and such a truss. The plant has been so forced and so cut about that it has not had sufficient root-rest to show its character.

I kept four plants of it in 1859, and in 1860 I made one hundred plants from them on the system of propagation I wrote about, and now one of them with four leaves only has thrown up a nearly "Good Gracious" truss. I shall never cease talking about it till it is as common as Punch.

But I have an entirely new and independent strain of most beautiful kinds of yellow Polyanthuses from the gentleman who surprised me so much last year by his saying, these or this yellow strain came true from seeds and could be crossed. One of his strain is nearly white with a large yellow eye, one is light lilac all over, one is hose-in-hose and each hose as yellow as the flower, one a brownish-yellow, and one red and yellow after the fashion of Ghent Azaleas, one is as good a yellow as "Good Gracious" itself; but the bred seems much more dwarf than mine, though the plants were grown in strong, adhesive, black loam, while my garden is so light that I can push down a walking stick a yard deep in it as easily as into a cask filled with dry Reigate sand.

I recollect a very large dark blue Pansy which Mr. Barnett had in the Experimental Garden in Edinburgh, and which would come as true from seeds as a wild violet. Mr. Barnett is in the Regent's Park Botanic, and may, probably, be able to tell the origin of that species of Pansy, for an accidental kind it certainly was. Now, if any one knows another Pansy that comes always true from seeds, the two could be crossed, and their progeny would be genuine cross-bred plants. The same phenomenon

might occur in Primula, in Dianthus, and in all the genera which yielded to the operations of the florist anterior to the discovery of the influence of the farina of old authors, or the pollen of our times. But they are very rare exceptions indeed, and supposing any or all of these yellow Polyanthuses came quite true from seeds, my "Good Gracious" will not be worth a straw to cross them with. It is a *negative*, as it were, and I suppose them to be a *positive*, and I am old enough to know that it needs two positives to give birth to one true cross-bred plant. If either of the parents sports, it only follows a law of Nature; and the fact of man's assumption in crossing them is not sufficient to cancel a natural law, although the fact of one of the parents being a *positive*, or always coming true from seeds, may influence so many of the seedlings—an event concerning which I have no experience, and, probably, no one can tell me, because philosophical experiments do not pay in gardening in these days as they did in the early days of Knight, Neil, and London.

At this point I have a notice of a white Polyanthus in Norfolk, which I shall be very glad to receive, or any other peculiar seedling of Polyanthus that is likely to come true from seed, or to be influenced in its seedlings by a different soil and culture. Perhaps we may yet meet with exceptions to the theory of crossing florists' flowers in all the families except those in the Composite order. If there are two kinds of Polyanthuses in the world which will come true from seeds, they must give a true cross-bred crop. Pansies the same, and so with all the rest of them. But if we can improve spring flowers by the exceptions to a weighty law, we shall do well and learn something to the bargain.

Here, again, I have been called out of my sanctum to unpack another basket containing seven kinds of yellow Polyanthuses, two of them being different from those I received the previous week, and a yellow Primrose with a large orange eye. I should like to know how stands this form of the wild Primrose over the country. I think his majesty of the cross-breeders had some seedlings like it a few years since. The rectory garden and the garden to the National Schools at Surbiton are now one blaze of Primula bloom, all seedlings from my "Good Gracious" Polyanthus, and as good a strain of kinds as you could find in the three kingdoms; yet when the mother was in flower there was not another Polyanthus in bloom within one mile and a half of it.

I have one more selected kind I raised from a packet of the first seeds which Mr. Smith, of Harwich, advertised. I sowed a packet of every collection of Polyanthus seeds which were advertised since 1852, and there was very little difference in the seedlings, only that the whole of them, without an exception that I can think of, were good border flowers.

But what I was going to remark about the one I selected for a future parent is, that it is quite as sportive as the "Good Gracious" kind. Out of sixty seedlings from it not one is just like itself; but they are all nearly as good. These two, therefore—my yellow and the rich brown from the Harwich packet—are two negatives, or two sporting characters. Now, as I have just said, do you think if I were to cross these two best kinds in my garden I could induce two blacks to make one white, or two negatives to make one positive? Not a bit of it. The autumn of 1855 brought to a close a long list of experiments began in 1829 on purpose to decide that point, both for flowers and fruit trees. Good practical physiologists suggested the experiments, and I had to conduct them; but the gentleman who owned the garden died the year after, and hardly any account was ever given of that experimental garden. But the then Lord Chancellor (Lord Cottenham), and his father-in-law, W. Wingfield, Esq., a Master in Chancery, with the assistance of J. Bidulph, Esq., of the firm of bankers near Charing Cross, enabled me to keep the collection of plants from passing under a common sale, where everything else was sold. Much of the collection was got together by contributions, and for the credit of the craft it was a sore point to let them under the hammer. Mr. Knight, of the Exotic Nursery, valued the collection, and I undertook to have it sold by private contract. I did so, and got more money than the valuation. The Messrs. Dickson, of Chester, were my best customers in out-of-the-way plants.

That experiment was successful; but all the crossing experiments were entirely for searching out the secrets of Nature—not one of them had the least pretension to "improve" a flower. I do not know if Mr. Knight was convinced or converted to the plan of testing his own theory of improving fruits, but the arguments about two blacks making one white were used freely against

his doctrine; they were also multiplied at his own suggestion. The conclusion arrived at was that *any two species, kinds, or varieties which did not reproduce themselves true from seeds could not act on each other by the process of crossing so as to change their nature, and that no reliance whatever could be placed on obtaining a true cross-bred plant between them.* So that, in fact, if the Green Gage and the Golden Drop Plum do not come perfectly true from pure seeds, crossing the two could not be considered as producing an intermediate seedling. Apples, Pears, Peaches, and all of them, were catalogued in that category; and I would ask after another quarter of a century's practice if the fact can be shown to be really so or not; for I am far from being certain about any one thing respecting the crossing of plants.

I may be wrong when I say that no one has yet suggested the true way of improving any one of our common fruits; but I said so a quarter of a century back, and have received no answer yet; and if I live till the florist prove the doctrine of two blacks being able to make one white, I fear my memory will fail me in counting back to the years of our "Good Gracious" things. But if I were a young gardener now, and knowing such questions to be yet questionable, do you think that I could noodle away my time as some do at the present day?

But if no more baskets of plants come in to disturb the rest of this letter, I can tell of a nice ribbon-border I dreamed about the other night. It seemed as if it were a show day at Chiswick, that we were in the large conservatory, that some one tapped me on the shoulder from behind, that she was a fine-looking figure, on the right side of the censors; that she had the advantage over our conversation, and twitted me on the length of time it took to make a Berlin-wool-shaded border out of seedling Geraniums. "Yes, madame," said I, "but did you hear of that ribbon-border I made?" and it (the ribbon) struck me all at once; and I thought madame was going to strike me too with her parasol for very pleasure at the idea of the arrangement—I stumbled back a little, and was wide awake.

That ribbon began in front with a close row of the variegated Arabis set at 4 inches from the edge of the border, and measured nearly 6 inches across. The second row was 9 inches or 10 inches across, and took two rows of the Crimson minimum—the last seedling I sent out. This is one of the best telling of all the very small Geraniums. You would not know the flowers from those of Imperial Crimson; but the plant is not quite one-half so big as Imperial. For a front row it has no rival, and it is as easily propagated and kept as Imperial Crimson—thirty plants of it may be wintered in one No. 32-pot, without a misfit of any kind.

The third row was of the Golden Chain throughout, medium-sized plants, and occupying 10 inches across. The fourth row was my Victoria Rose Geranium; but as I cancelled that sort in favour of Mr. Kinghorn's Christina, you must take the latter which is all but the very same. I had these last two running side by side in 1860, and no two Geraniums can be more contrasting than the Golden Chain and Christina, nor than Golden Chain and Crimson minimum, for I saw the two together in 1859, which was about hot enough for both. As to the contrast between the variegated Arabis and Crimson minimum, I cannot dream that any one can make objections on that score. The fifth row comes more in combination than in contrast to Christina, it was of my Carmine Nosegay—the best bedding Geranium I ever originated; it is of a shade between lake and carmine, which no rain or sunshine can impair. It is just the next highest size after Christina, and between Christina and Tom Thumb. The sixth row was the strongest contrast on the border—a dark purple or atro-sanguinea colour; it was Stellatum, or the stellate Nosegay—a new style of flower, half way between a Nosegay and a Tom Thumb flower. The seventh row was Punch, one-year-old plants, and not trained down: up to the back leaves of Punch you might run a straight edge along the whole border to touch the tops of all the plants in the slope, although the border was a dead level. The eighth row was of old plants of the Cottage Maid horseshoe Geranium, the only horseshoe kind they plant now, largely, at the Crystal Palace. But I should, myself, prefer a globe-flowered Geranium at the back of Punch; for the Globe form of truss is just as good a contrast to the flat truss of Punch and most other Scarlet, as the Nosegay style of flower is on the other side; and without making strong contrasts in real good colours, a ribbon is not one half so telling as a plain sash, or a border all of Punch, Tom Thumb, or Crystal Palace Scarlet.

Last season I saw a new Globe Geranium from Mrs. Conway,

of Earl's Court, Old Brompton, which is, probably, the one which is now named Princess of Prussia in the Wellington Road Nursery; and if so, Mrs. Conway's seedling would be my Globe, and my last row on a wide-awake border; but in the dream the old Compactum, and two-year-old plants of it, was the plant.

Now, that certainly was a showy ribbon, and all of the very best Geraniums, with only an edging plant, as it were, for a bed for the front row. There were two more rows at the back; but from what the lady said when she missed the hit with the parasol, I shall never tell them or say a word about them.

D. BEATON.

A RAID AMONGST THE NEW ROSES.

EARLY days for this! Why not "bide a wee," when more fitting opportunities will be given, when the summer or autumnal bloom will be more in character, and when we can judge more correctly of what they are? My answer is, I see every day advertisements ament them; hear inquiries—"Are they as good as they are said to be?" "Is it safe to get them so early?" and many other questions of a similar character; and so, having had an opportunity of seeing some of the brood, I hope a few observations, made under what are, of course, indifferent circumstances, may not be unacceptable.

I say indifferent circumstances, for they must be so. The plants are removed in October or November, and as soon as possible every available bit is used for grafting. This is, of course, done in a very strong though moist heat. In a fortnight or three weeks the graft is pushing along. Away it goes with railroad speed; you may almost see it grow—it has not time to stop for anything. In a couple of months it has run up a foot, or a foot and a half. Now comes the cruel propagator. "We want Roses on their own roots," he says, "that's the cry now. Sir, these must go!" and so off come their heads. "But we want to see what they are." Very well, leave a few for blooming; and under such disadvantageous circumstances we must take our few notes. "The grain of salt is meted," and by-and-by we may have quite to modify our opinion of them. However, they are worth, I think, this much—that if a Rose shows well in such a position we may reasonably anticipate that it will improve, while we cannot positively condemn anything that may not look well now.

As the autumn of 1859 introduced several light-coloured Roses, so that of 1860 brought before us an unusually large number of high-coloured flowers. Some of these I have seen, and one I see characterised by some growers as the best of the season—I mean *Peine des Violettes*. Of this I feel confident, that that is very, very far from its true position; and unless it alters very much in the future it will not, I believe, be found "anywhere" in a year or two. No doubt its habit is vigorous, and on its opening day it is pretty; but its beauty is of the most short-lived character. It immediately in twenty-four hours assumes a dingy, shty appearance, gets lighter and lighter, until it perishes. Now, we found fault with *Géant* because he does something of the sort, but he is twice as long-lived.

As far as I have been able to judge, the best dark Rose is *General Washington* (there would be no wonder if *he* grew faint at seeing the fratricidal contest in the once *United States*). It is of a splendid shape, rich in colour, and very full, without being too much so. Its habit is good, and I shall be much disappointed if it be not *Al*. The charge of want of fulness cannot be made against *Madame Furtado*, figured in the May number of the "Florist" with Mr. Andrews' usual accuracy. The only question to my mind is, whether it will not be too full. The centre is filled with a large number of smaller petals, and there is a *La Reine* aspect about the flower, which makes me doubtful as to its opening well in the open air; but it is a beautiful Rose, and we may hope well of it. On the other hand, *Abdel Kader* is approaching more to *Général Jacqueminot*, of which it is probably a seedling: very brilliant in colour, and large in petals. Of its future I am also hopeful as a valuable and useful Rose. The gem of pot Roses is unquestionably a seedling of *Trouillard*—*Comte de Falloux*, one of the *Géant* race (I was wrong in questioning this, I think), but most abundant in flowering, never showing a shoot without a bloom, or two, or three. Brilliant in colour, and deliciously fragrant, forcing well, and growing well at all times of the year. Jean

Bart promises to be a decided acquisition, being one of the very dark Roses, of the Empereur de Maroc style, but vigorous in habit, holding a fine head of bloom, and showing well on the plant. Then, for hardiness, there is probably no Rose which will better (or so well) deserve the character than Madame Standish; not novel in colour, pink or rose satinée, but of very fine foliage and good form. Where others have perished around it in thousands, it has been comparatively untouched. It will doubtless make a fine pillar or trellis Rose. Then, amongst Teas, La Boule d'Or seems as if it were likely to be what it is said to be. Margottin does not usually say more than a flower deserves; and although I have as yet seen it only in bud, it promises well. Its habit is good, and the colour excellent: the yellowest of all Tea Roses.

If an amateur have the means of putting them into a *warmish* place for a while, and gradually hardening off, there can be no danger in getting Roses now; but on no account ought they to be subjected to cold, which will infallibly produce mildew. If had now, and carefully managed, they will afford buds in July for budding, and this should determine persons who can to get them now; moreover, the tops will now make good cuttings, and if *no time be lost* they will root rapidly enough. And such has been the havoc, that every one will be anxious to make as much way as possible in filling up vacancies.—D., Deal.

FORCING.

(Continued from page 62.)

GARDEN CRESS, WHITE MUSTARD, AND RAPE.

THESE are grown in many places all the year round for their seed leaves to be used as salading. On board ship they are generally grown in very shallow boxes of earth, or on thick coarse woollen cloths. To have it regularly, the seed should be sown every five or six days, and be placed in heat, from 50° to 65°, from the middle of October to the end of March. From April it can be grown out of doors, first with the protection of a hand-light, and then fully exposed, using a mat or a piece of calico merely to lay over the seeds before they are fairly up, when it should be removed in order that the tiny leaves may become green. As soil, nothing is better than old tan or decayed leaf mould mixed with sand. Shallow boxes are best in most people's estimation, though I prefer small pots about 4 inches in diameter, as the produce is easier cut; and as you cut two or three pots you can just remove the surface soil or fill afresh and sow again, which always gives a nice, regular succession. Whether, however, grown in pots or boxes, I prefer the surface soil to be made rather smooth, the seed sown thickly over it, so as to touch each other, and then gently pressed on the surface and watered, but no covering of soil or sand put over them, but covered with a piece of cloth or paper until they are growing. By this means the seedlings rise clean, and require but little washing in comparison with what they need when sand or light soil is thrown over them. The Golden Cress is more yellow in colour than the common. The Normandy Cress is very hardy, and where heat cannot be given should be used by those who like it. Sow in September and October for winter and spring, and in April and May for summer use.

CUCUMBER.

This, in northern latitudes, has received more or less forcing since the days of the Romans. In fine summers it is never more at home than out of doors in the south of England. Even at Sandy, in Bedfordshire, vast quantities are sown in the open ground in April and May, and the plants are thinned out like a crop of carrots or turnips, and allowed to occupy the ground. In fine seasons the produce is immense. In such seasons as 1860, this crop was next to a failure. Even those privileged with hand-lights and large glasses were not much more fortunate. These may be considered the means for furnishing Cucumbers to the working men in the late summer and autumn months. To obtain them in spring and early summer as well, hotbeds have to be resorted to. To get them all the winter, and all the year through, such beds and brick-pits heated by linings need to be resorted to, developing much skill and attention on the part of the gardener. For winter and very early spring supply it is now common to have heat supplied by hot water, or flues, or some means more certain and regular than dung linings, though, as stated above, great things have been done with dung and leaves alone.

There is a good old custom existing, where there is a large garden possessing every convenience for raising young Cucumbers, of giving a few plants in March or April to their neighbours who have only their two-light box and a small dung-bed. Keen amateurs, however, in general prefer sowing and raising their own plants. To save repetition, I would refer them to page 89 of the last volume, for the modes of preparing most fermenting materials, and at page 106 for the simple forms of frames and pits that will be most suitable—the first for general purposes, and the second for early or winter work. For the latter purpose we strongly advise a close wall; or, if there are pigeon-holes in the wall opposite the chamber either open or filled with rough stones, the floor above it, whether of slate, stone, or fine gravel, ought to be so close, or the soil kept so close to the sides of the pit, that no rank steam can find its way into the atmosphere of the pit. All such pits for winter and spring work should be heated by dung that has been only slightly fermented beforehand, so as to obtain all the heat that it can give. Economy will also be secured by straw hurdles or hurdles wattled with evergreen branches being set round the linings. For winter and very early spring work the plants will do better on a trellis fixed 14 inches or 15 inches from the glass than when the vines are lying on the ground. Early plants when so grown on a trellis we would prefer also to have in large pots instead of in a bed, as then there might be a chance in severe weather of increasing the bottom heat by putting sweet hot tan, or sweet hot leaves inside, and even elevating the pots a little without disturbing the plants. Such plants should be trained to a single stem before reaching the trellis, and then be stopped and trained in the usual manner.

Now for the minutiae as respects dung-beds.

Temperature.—However seasoned, it must be sweet, and sufficient to yield from 75° to 85° bottom heat, and an average of from 65° to 70° top heat, with a rise of 10° or 15° from sunshine. Long fancy kinds generally require a temperature averaging 75° to swell them long and regularly. That mentioned above will be high enough for such serviceable kinds as Cuthill's Black Spined, Ayres' Prolific, and the improvements on the Kenyon, as the Telegraph, and Cox's Volunteer, which are wonderful bearers; for such kinds as the smooth-skinned Kenyon, or Sion House, the most sure of all for winter supply, a top temperature ranging from 60° to 70° will be quite sufficient. The above will also give an idea of kinds. Fancy sorts of great length generally require much heat, and are not so prolific as shorter, hardier kinds. Were I a cucumber-eater, I should prefer them crisp, young, and from 9 inches to 12 inches long.

Size of Fermenting-beds.—This will depend on the season. If made in December, we would have them 5 feet high at the back, and 4 feet high in front. In January, 4½ feet, and 3½ feet respectively. In February, a little less. In March, 3 feet at back, and 2 feet 3 inches in front, and so on. For all beds, and especially early ones, we prefer them to be made as shown in fig. 2, page 106, of our last volume.

Time and Method of Sowing.—The first will depend on when the Cucumbers are wanted—say three months after being sown in December, ten weeks in January, two months in February, and so on. Before sowing, the bed should also be sweet. A small one-light box is often used for this purpose, but where there are other things wanting a little heat, a two-light box is the most economical. Use light rich soil for sowing in. It is generally advisable to sow in a six-inch pot, filling the pot about three-quarters full of drainage and soil, and then thinly covering the seeds, and placing a square of glass across the pot, and a piece of stone on the top of it, to keep all chance of mice away. If the bottom heat is more than mentioned, merely set the pot a little in, or on the surface of the bed. Use soil rather dry than moist, as a certain amount of moisture will be absorbed from the bed. If the seed is new, you may give a sprinkling of water in three days or so. If old, it is better to give none, or very little, until a few days more. When the plants are fairly up, water as needed, and sprinkle a little sandy peat and leaf mould amongst them. When they have made two or three rough leaves, pot them singly into four-inch pots, and water and shade until they are growing freely. When I wished to gain time, I put a good firm seed into a small 60-pot, and put several of them into a small hand-light in the bed, sinking the light a little to prevent vermin getting at them. These, when transferred to a larger pot, hardly ever feel the moving, and grow more vigorously, and require less care as to shading. If not quite certain about the heat of the bed, or the due warmth of the soil, we place each

plant into a six-inch pot, and that kept near the back of the bed is sure to be hot enough, plunged, half-plunged, or merely set on the bed, according to the heat; as too much heat at bottom is as enervating as too little is retarding. Both extremes produce a sickly habit, and invite the attacks of insects.

Soil.—Whether for seedlings, or plants to be turned out in the bed, the soil should not be much below 80° in temperature, we would rather have it at first 5° more. If 4 inches or 5 inches are spread over the bed, that could be collected into ridges, or hills in the centre of each light. From 12 inches to 15 inches deep will do for Cucumbers. So much nourishment escapes from the dung that for early work the soil should be light rather than very rich; for early work in beds, and winter work in pits, nothing answers better than three parts of heath soil, and one of leaf mould, one of fibry loam, and one of silver sand. For places heated by hot water, we would in winter have equal parts of heath soil and fine aired leaf mould, with a little silver sand. As the spring advances we use any light soil, as equal parts of sandy loam, and leaf mould; and as summer comes any good garden soil. In May we have used equal portions of stiffish loam and rotten dung, with fine effect; but we should never dream of such a mixture in February.

Planting out.—When the heat is sweet, known by the condensed drops on the glass being as clear as dew, and the soil is warm enough, the plants may be turned out of their pots, either three plants in a hill of soil, some 15 inches high and 18 inches through, or in a ridge in the centre of the bed, only a few inches nearer the back than the front, and in that the plants may be put out separately, and at equal distances apart, three plants to a light. In planting after April we would have one plant to a light in preference to more; but in January and February we prefer three, because we thus get so many fruit earlier. Besides the ridge of soil in the centre, and a little over the surface of the dung, it is also advisable to have a ridge of soil close to the sides of the frame; so that when the plants grow freely, and the roots protrude through the central ridge or hills, a little heated soil from the sides may be added to them.

Training.—The young plants should have the points nipped out when they show the third rough leaf, a secondary shoot will show from the axil of each leaf. If three plants are put in a light, only two of these secondary shoots should be kept to each plant, one to be trained and pegged down to the back, and the other to the front; all others should be picked out with the point of a knife. If fewer plants are used, more secondary shoots should be taken from each. These secondary shoots or bines we would allow to grow from 15 inches to 18 inches before stopping, if good continuous bearing is desired. If early fruit is the main consideration, we would stop these shoots when 6 inches long, merely nipping out the terminal bud. In either case the side or tertiary shoots from these main secondary ones will most likely show fruit at the first joint, or the second, and must be stopped by nipping out the point there, or the joint above. When the plants are young and vigorous, every fresh joint made must have the shoot stopped at the next joint, and this with removing old leaves, and giving room to younger ones, constitutes the chief amount of training and pruning the plants will require. When the plants show signs of exhaustion, the allowing several shoots to grow 18 inches or 24 inches, or even more, will renew its strength, and the older shoots may be removed; and the younger shoots being stopped, will give plenty of bearing side shoots as before.

Watering.—The water should always be as hot as the soil, never below 80° for early work. For all early work clear soft water is best. As the sun acquires power, and the days lengthen in April and May, weak manure waterings will be an advantage. Young plants in dung-beds will need little water at first, as in dull weather there is apt to be an excess of moisture. Even then they must not be allowed to become too dry. But in giving a little beware of saturating the soil farther than the roots extend. On a bright day the plants might be slightly dewed from a syringe early in an afternoon, and the boards of the frame at back damped, especially if banked up as shown in section 3, page 107 of our last volume. This will cause a fine dew to be deposited on the leaves during the night. Towards summer the leaves may be syringed all over during an afternoon, but that would give too much damp in January or February.

Ventilation.—In the early months of the year little can be given, and yet maintain the necessary heat. That little, however, should not be neglected, as all enclosed atmospheres with plants in them, and especially in cloudy weather, become impure. If

the heat will permit, a little air should be left on the back of the frames at night, though only the sixteenth part of an inch, and one-eighth would be better still, even if a piece of muslin were stretched along the opening. Means must be taken, however, to prevent the steam from the linings entering at that opening. In early spring the uncovering of the beds will lower the temperature, and, therefore, an hour before uncovering, the air might be all taken away, and a little given afterwards as soon as the sun began to operate on the frame. Much success depends on early air-giving. If very sunny a little more will require to be added as the sun gains power. If kept close too long before air is given, giving much at once is often very injurious. For instance, in a frosty day, the sun is bright and raises the bed shortly that has no air on to 90° or 95°—sufficient in such circumstances to scald the plants; and if enough of air is given to sink the bed shortly to 80°, a burning, cold, dry air completes the mischief the scalding had begun. Suppose the covering had been removed at 8.30 in the middle of March, and the thermometer was then at 70°, and the sun was bright, a very little air given when it reached 75° might prevent it reaching above 80° altogether; and if it rose a little higher a little more might be admitted and reduced after noon, and taken away altogether early in the afternoon. By giving a little thus early, too, there is no occasion to run to the bed every time the sun enters or emerges from a cloud. Acting on this principle, we have known amateurs very successful who never could look at or do anything to their frames from 9 A.M. to 4 P.M. They became shrewd guessers of what the day would be, and never left home without leaving a little air on. When more is necessary at an early season, the sashes then, and always, should be tilted or raised up at the back, never slid down, and a piece of woollen net or cotton muslin might be stretched across the opening. The shutting in of the sun's rays early in the afternoon is of importance, even if you give a little air after covering up for the night.

Protection by covering for early crops will be needed, less or more, from November to the middle and end of June. Russian bast mats are generally used, and thicknesses must be given from one to four in proportion to the weather. They are littery, dirty, and expensive at best. Asphalt or wooden covers are far superior. A waterproof cloth or canvass, with woolly matter inside, is very good. In severe frosts, a piece of calico large enough to cover all the glass, a little dry hay sprinkled over it, and a waterproof cloth over all, would suit many amateurs, and be nice and cleanly. In severe weather the covering should be on early in the afternoon, and be off by nine or ten in the morning. In extra severe weather it may stay on for a day, but in general the plants should have light every day, though even for a short time. As the days lengthen the covering should not be on so as to intercept any direct sunlight. When fire heat can be given, it is easy to raise the temperature a little before uncovering.

Increasing Heat.—This, in such circumstances, can only be done by means of linings; or if the plants are in pots, even in dung-pits, forking up, and adding a little sweet fermenting material to the inside among the pots. It is advisable not to let the heat inside become too low before the linings are turned, or fresh additions made to them. It is also best to do the front at one time, and the back at another. The bottom heat must also be ascertained by means of a ground thermometer, or by a trial stick put in the bed; for a little practice will enable you to tell at once near the temperature, by feeling with the hand a stick an inch in diameter that has been thrust firmly into the soil. If the bottom heat is deficient, then the lining must be turned to its base, and some fresh material used. But in most cases in a period of dull weather the top heat will languish, when there is quite enough at the roots of the plants, and in this case the turning and the addition must not go lower than the surface of the soil inside. With beds made as in fig. 2, page 106 of our last volume, and well banked up round the frame, we have had Cucumbers growing from January to September, and the lining was never turned to the bottom, because the bottom heat was always high enough. In such turning of linings care is always required, by pressing the soil close to the sides of a box, to prevent any rank steam entering. Of course, in a close-walled pit this care is little required. I have forgotten to add, that in covering this also must be looked to—the covering must not hang over the linings in front if any impure steam arises from them, as thus it might be sucked in between the laps of glass, &c. Inattention to this has ruined many plants.

Cleanliness.—The back of a frame and of a pit should be washed with lime and sulphur, and the glass should be kept scrupulously clean inside and outside. In frames and pits, too, it is a good thing to have other lights of a similar size at an early period, so that clean dry ones might take the place of dirty damp ones, by exchanging for a time. This exchange might be made quickly in weather when to attempt to clean the inside of the glass might be ruinous to the plants.

Shading.—If the plants are planted from 12 inches to 15 inches from the glass, and air is early given in the morning, shading will be little wanted, and the less the better. The times when it will be chiefly required for such tender things as young Cucumber plants at an early season, are when a very bright day comes after a period of dull weather. The plants are then rather enervated, and unfit to meet the demands at once made upon them, in the way of perspiration, and the assimilation of carbon. Water may not be at all necessary, and yet they may show signs of flagging and distress; a slight sprinkling or dewing of the foliage and the sides of the frame with water may arrest the evil. Sprinkling even the outside glass from the syringe may serve the purpose by breaking the force of the sun's rays; but if that will not do, an evergreen branch or thin bunting must be resorted to, but never longer than it is required. Some people shade from the sun in the forenoon, and let it continue on in the afternoon, long after the sun is beclouded; no wonder that such plants have to cry out for shading. Unless after such extremes, with air on, and the leaves far enough from the glass, shading should only be thought of as a necessary evil. R. FISH.

(To be continued.)

CANON HALL MUSCAT VINE IN A GREENHOUSE.

PINCHING PEAR TREE SHOOTS ON A WALL—GOLDEN DROP PLUMS FALLING.

I HAVE a very vigorous Canon Hall Muscat Vine growing in a greenhouse, which shows fine bunches, but never sets well, only a few of the berries coming to perfection. If I were to give it more heat while in bloom would it do to keep it cooler afterwards?

Would it answer on a wall well filled with Pear trees to keep them constantly pinched in, as the long shoots are a great eyesore?

Our Golden Drop Plums after setting their fruit very well, scarcely ever bring half a crop to perfection; dropping off when quite small. Can you suggest the reason? The borders are of a deep, strong, cold soil, in Worcestershire.—AN OLD SUBSCRIBER.

[Try and keep back your Canon Hall Muscat as long as possible. In a greenhouse it should not be in bloom until well on in June. At that time it should not be lower in temperature than from 65° to 70° at night, and you may allow it to decline after it has set and begins to swell. See what is said about Muscats in "Doings of the Week." For a greenhouse where a high temperature is not required, a Canon Hall is a very unsuitable Grape; but by the above means you may ripen it late in autumn, more especially if all the greenhouse plants, properly so called, are removed by the middle of June, and plants requiring more heat introduced. The sun will give great heat after that.

You may pinch the points of most of your Pear shoots when four or five inches long; but it would be good policy to leave a number of shoots, and if unightly break them half in two and fasten them to the branches. In strong-growing trees, if all the shoots are pinched in at once, there is a danger of starting into wood-growth what would otherwise have been fruit-buds.

The roots of your Golden Drop are most likely too deep; either raise them or remove a portion of the surface soil. Probably after all, Nature does what the gardener will hardly do—thin in time and thin enough—as such trees when they bear a very heavy crop one year, are apt to take a year's rest by way of revenge, and telling us how they ought to be treated.]

RHODODENDRON FALCONERI, which has the most handsome foliage of all the varieties I am acquainted with, has now a magnificent truss of bloom consisting of twelve blossoms, each about 2 inches in diameter, of good substance, and of a delicate, creamy white, with a slightly streaked purple throat. The foliage is a little damaged, caused by my subjecting the plant last season to sudden and severe changes of temperature, with

the object of blooming it.—JOHN STEVENS, Gardener, Malvern Hall, Solihull.

THE WILD FLOWERS OF GREAT BRITAIN.*

THE first Number of this serial is now published, and we have no hesitation in saying that its four plates with accompanying descriptions are the cheapest coloured illustrations of British wild flowers ever offered to the public. We may add that the drawing of the plants shows an appreciation of their natural habits superior to any that had before been employed upon our native plants. The colouring, all done in water colours and by hand, is also perfectly accurate.

The Number contains Borage (*Borago officinalis*); Yellow Meadow Vetchling (*Lathyrus pratensis*); Marsh Woundwort (*Stachys palustris*); and Creeping Cinquefoil (*Potentilla reptans*). The work is so printed that the purchaser can arrange the plants according to any system he prefers, and to enable this to be done, indexes alphabetical and systematical (Linnean and Natural), will be given with each volume. It is intended to give, as circumstances may justify, two or more drawings of species of the same genus on some of the plates. We extract the following as a specimen of the contents:—

"BORAGO OFFICINALIS. Linn.

"Common Borage.

"Nat. ord., Boraginaceæ. Linn. arr., Pentandria Monogynia.

"ESSENTIAL CHARACTER.—Limb of the corolla flat, much longer than the tube; mouth with a double row of valves, the innermost awl-shaped, bearing the stamens.

"SYNONYMS.—*Borago officinalis*, Shop Borage, Gray's Arrangement, ii., p. 350; *Bronwerth*, *Tafel yr ych*, Welsh.

"DESCRIPTION.—*Root* tapering, mucilaginous, as well as the herbage, which is clothed all over with very sharp bristles. *Stem* erect, with spreading branches 1½ to 2 feet high, round, spreading, leafy, and covered with rigid hairs. *Leaves* alternate, ovate or oblong, wavy, and more or less toothed; the lower ones broadest, stalked, and eared at the base; upper ones stalkless. *Flowers* numerous, on long foot-stalks, in terminal drooping bunches, very beautiful. *Corolla* an inch broad, of a most brilliant blue, pink in the bud. *Stamens* very prominent; valves and anthers prominent, blackish. *Seeds* wrinkled and warty, of a light shining brown.

"TIME OF FLOWERING, &c.—The plant is a biennial, and flowers all through the summer, commencing about the end of May and beginning of June.

"HABITAT.—It is found on waste ground, among rubbish, generally on soils charged with nitrogenous matters. It is frequent in most counties, and is generally believed not to be indigenous, but at some period to have escaped from cultivation.

"VARIETY.—There is a variety with white flowers found on entering Sandwich from the Deal side."

HISTORY AND USES.

"No such a term as Borage occurs in the writings of the classic authors, and the origin of the name is very doubtful. Lyte, in his translation of Dodonæ's Herbal, published in 1573, says, 'The ancient fathers called it in Greek *Bouglosson*; in Latin *Lingua bubula*, *Libanium*, or *Lingua lovis*, that is to say, *Langue de bœuf*, or *vache*; in English Oxe tongue, the apothecaries name it *Borago*, and accordingly it is called in Italian *Borragine*, in Spanish *Borraja* and *Borrajenes*, in English *Borage*, in French *Bourroche*, in High Dutch *Burretsch*, and in base Almaine, *Bernagie* or *Bornagie*.' Now all these European names are evidently derived from one original, yet no one has yet detected it—at least we do not seem satisfied with the derivation from Apuleius Platonius. In this most early of Herbals, written in the fourth century, and the printed copies of which are among the rarest of books, he states the Bouglosson of the Greeks was called at Lucca, '*Corrago*, quod cordis affectibus medetur.' Now Corrago is a very good name both in sound and sense, because the herb was then believed to strengthen the heart (cor); but why, against all precedent, change the first letter into B? making the name nonsensical. Even the name in Apuleius is uncertain; for in an edition without a date printed at Basil, and containing the works of Soranus, Oribasius, Pliny, and L. Appuleius

* *The Wild Flowers of Great Britain*. Illustrated by coloured drawings of all the species, by Charlotte Gower, and botanically and popularly described with copious notices of their history and uses by Robert Hogg, LL.D., F.R.H.S., and George W. Johnson, F.R.H.S., Editors of THE JOURNAL OF HORTICULTURE, &c. London: Office of the JOURNAL OF HORTICULTURE AND COTTAGE GARDENER.

Madaurensis 'De Herbarum Virtutibus,' we find, cap. 41, of the last-named, is 'Nomina et Virtutes Baglossæ.' He there says, in enumerating the names by which it was called in Greece, Egypt and elsewhere '*Lucani Carroga*,' and in the margin is another reading, '*Lacones Corrago*.'

"We think the most probable derivation of the name Borage is from that made use of by Myrepsus, who wrote in the fourteenth century. He describes the plant under the title of *Pourakeon*, evidently derived from *Pōrēō*, unhappy, and *akeo*, to cure, alluding to its supposed medicinal qualities. The change of the P to B in proper names was very common, and then *Bourakeon* is the Greek derivative.

"However, whatever may have been the origin of the name, there is no doubt that our forefathers attributed to this plant great invigorating powers. Their directions for its use in medicine are a tissue of superstition and symbolical nonsense—'three thyrses of seed' to be given in the tertian ague, and 'four thyrses' in a quartan!

"It was one of their four cordial flowers; and Parkinson affirms in his 'Herbal' that 'the leaves, flowers and seeds, all of them, or any of them, are very cordiall, and helpe to expell pensiveness and melancholic, that ariseth without manifest cause, whereof came the saying—

"Ego Borrage gaudia semper ago,"

which has been freely translated into—

"I Borage,
Give courage."

"If this plant ever possessed the power of vanquishing 'Blue Devils' and placing 'L'Allegro' triumphantly in their place, it is another symptom that the powers of this world are departing. At all events Borage is no longer used in pharmacy; and though its use still lingers in the preparation of cool-tankards, and the beverages well known at Cambridge as cepas and cider-cup, yet we suspect that the hilarity to which they give birth is attributable to the liquor rather than to the Borage leaves.

Its young shoots, which have a slight cucumber flavour, are sometimes an ingredient in salads, and sometimes are boiled like spinach. The caterpillar of the Gamma Moth (*Noctua* (*Plusia*) *gamma*) feeds upon the leaves. Its flowers afford abundance of honey to bees, and hence it deserves to be cultivated near apiaries."

KIDDEAN MODE OF HEATING.

I HAVE applied the Kiddean plan of heating to a small greenhouse I have just built, and I am much pleased with the economy and completeness of it. Perhaps some few particulars may be of interest to those of your readers who, with myself, have a great liking for flowers, but small means for gratifying their taste. My garden is one of the regular London slips—80 feet long by 16 feet broad, with a north aspect, and worse still, without sun for three winter months. At the bottom of this I have put up a span-roofed house 20 feet long by 16 feet wide, using the side and end walls of the garden for the walls of my house. Then came the question, How was I to heat it? I could not very well have my stovehole in my neighbour's garden, and one in the front of the house would have been very unsightly, besides taking up valuable space. So I decided on having my furnace inside the house; of course you will say, Wrong decidedly. I know that, but I had to do the best I could under the circumstances; so in the north-west corner I built up a glass partition 5 feet by 4 feet, taking care to get it as air-tight as possible, so that no smoke or dust can get into the house. Here I have my stovehole, and I fancy I shall be much more comfortable when I light my fire on a snowy night with everything nice and dry, than if I had to get into a wet well of a hole outside, though that would be the orthodox fashion. My furnace is 2 feet long, 10 inches broad, and 1 foot deep. I built it with fireclay, which, by the way, was a horrid sticky job. The top of the furnace is an iron plate three quarters of an inch thick, well bedded in fireclay, so as to make all tight. I used this because I found I could not manage so small an arch with bricks. A small flue takes the smoke out of the house by the nearest way. The air-chamber is 6 inches from the sides of the furnace, and, perhaps, 9 inches at the top, which is a piece of flagstone. The openings for cold air in the stove-hole are 6 inches square, and in so small a house as mine I dispense with flues for the hot air, and have instead two openings of 6 inches square at the further corners of the top of the chamber—i. e., just in the greenhouse. I find the hot air rushing in two copious streams into the house

within fifteen minutes of lighting the fire. On Saturday the 27th ult., when it was raining and snowing, I raised the temperature from 42° to 63° at the end of the house furthest from the air-holes within the hour, and this with two or three shovelfuls of ashes from the dust-heap with a bright coke or coal fire, I could have got 10° or 15° more. I found the air as it leaves the hot chamber was about 112°, but a yard above it the thermometer only gave 72°, showing how rapidly the heat must be diffused. By pouring water into the chamber I got a delightful moist heat, and to crown all, six hours after the fire was out I still found warm, not hot, air issuing from the chamber. I think by this plan I shall be able to set my great enemy—damp, at defiance. Of course, when the fire is alight the door of the stovehole shed is closed, the cold air for the furnace coming in through a window in the side. Can I have Vines without hurt to my plants if I only let them be on one side of the house, and let none of the branches come beyond the apex? I find my house altogether will cost me under £5, but then I have done everything myself. If any of your readers would like to know how I went about it, I shall be happy to give fuller details. I have had so many wrinkles and helps from 'THE COTTAGE GARDENER,' that it is only fair I should do what little I can to help others who have not been quite so long dabblers in gardening as—W. A.

POMOLOGICAL CLEANINGS.

PRINCE ALBERT GRAPE.—Do any of our readers know the Prince Albert Grape? It is very like Barberossa, and by some considered synonymous with it; but there is some reason for believing them distinct, the Prince Albert being said to be three weeks or a month earlier than Barberossa. We shall be thankful for any information on the point.

HOW SEEDLING GOOSEBERRIES ARE SENT OUT IN LANCASHIRE.—When a seedling Gooseberry has proved worthy of being let out, which is generally when it is four or five years old from the seed, the owner cuts all the wood from the seedling trees, and with the young plants, divides it into twenty-one lots. He then gets twenty-one subscribers, who take it at 10s. 6d. per lot. The old stool is sold by auction to the highest bidder, in some cases fetching £1 or £5. The seedling plant of Catherine was sold for £3, and Napoleon le Grand, £5 5s. In some instances a lot would not weigh 1 oz., and this causes them to be scarce for some years after being let out.

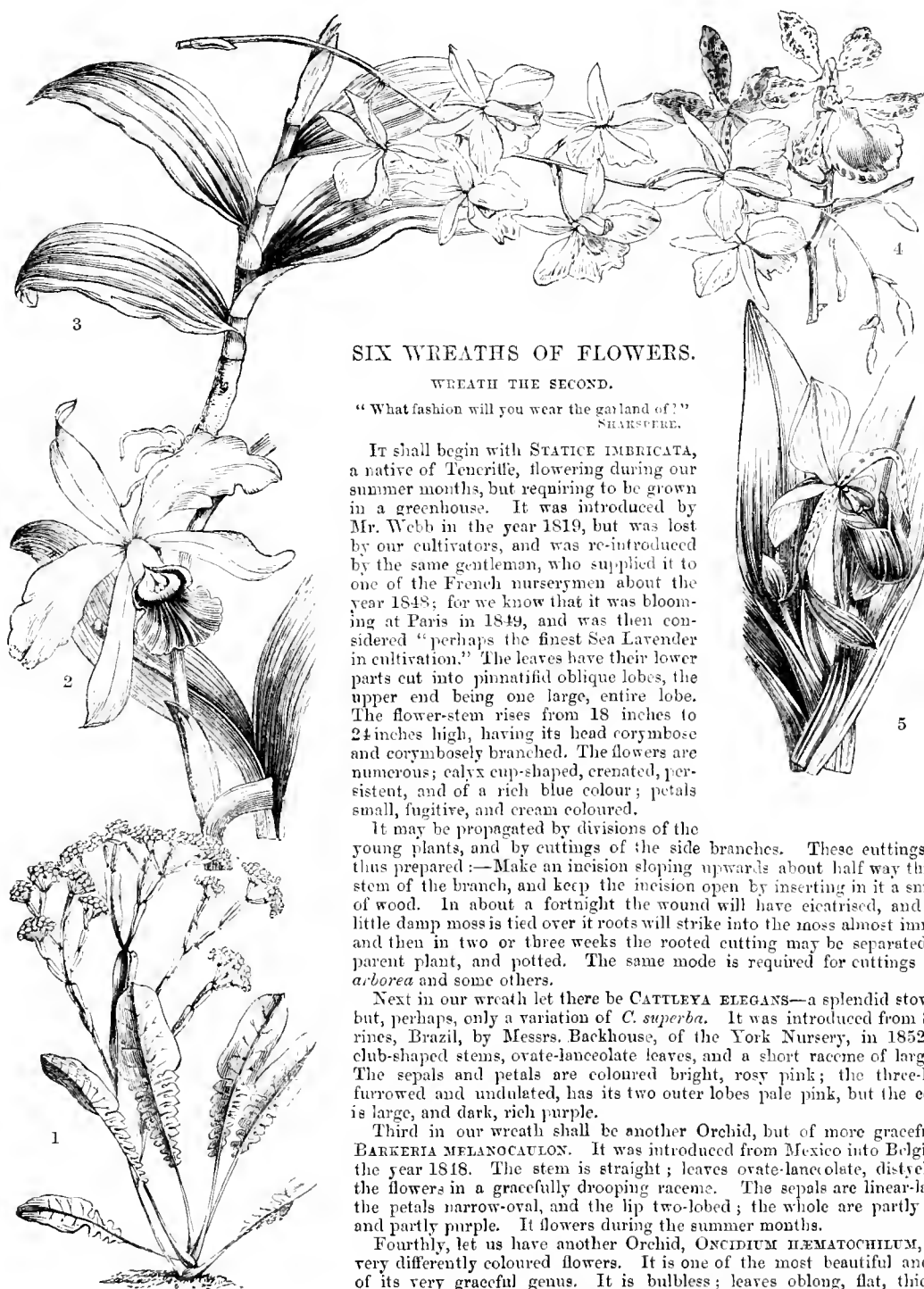
EFFECTS OF LAST WINTER ON PLANTS IN ENGLAND.

(Continued from page 19.)

I AM in the central part of Somerset; soil a rich loam. A *Magnolia ferruginea* as a standard, covered with only its extremities cut, whilst *Laurastins* close by is apparently killed. I housed my Tea Roses all but four, one of which is Madame Williams, and which were deeply covered in snow. The four that remained out are doing remarkably well, all on their own roots; whilst of hardy *Perpetuals* on the Dog Rose I have lost more than 200, some of them four years old. For the future I intend having all on their own roots.—J. A. P.

CRYSTAL PALACE SCHOOL OF ART, SCIENCE, AND LITERATURE.

—The Committee of Directors lately arrived at an important decision in respect of the admission-fee to the important and interesting course of scientific lectures which have lately been given by Dr. Dresser and Dr. Laakester in the private lecture theatre of this school. The fee has been wisely reduced to a minimum; and with the unrivalled educational facilities possessed in the collections of the Palace, when used by such talented men as those whose names appear on the announcements, these lectures will become not only an important adjunct to the various classes, but a recognised element in public education. For the remainder of the term, which closes here in July, Dr. Dresser is announced to give a summer course of Botany, the lectures to be illustrated from the great collections of growing plants belonging to the Company as well as from the Technological Museum. He is also to instruct in the dissection of flowers, and to give demonstrations on the commons round London. Such advantages as these are not possessed, we believe, in any other botanical school in the Kingdom. The fee for the course is to be only 10s. 6d.



SIX WREATHS OF FLOWERS.

WREATH THE SECOND.

"What fashion will you wear the gayland of?"
SHAKSPEARE.

It shall begin with *STATICE IMBRICATA*, a native of Teneriffe, flowering during our summer months, but requiring to be grown in a greenhouse. It was introduced by Mr. Webb in the year 1819, but was lost by our cultivators, and was re-introduced by the same gentleman, who supplied it to one of the French nurserymen about the year 1848; for we know that it was blooming at Paris in 1849, and was then considered "perhaps the finest Sea Lavender in cultivation." The leaves have their lower parts cut into pinnatifid oblique lobes, the upper end being one large, entire lobe. The flower-stem rises from 18 inches to 24 inches high, having its head corymbose and corymbosely branched. The flowers are numerous; calyx cup-shaped, crenated, persistent, and of a rich blue colour; petals small, fugitive, and cream coloured.

It may be propagated by divisions of the young plants, and by cuttings of the side branches. These cuttings must be thus prepared:—Make an incision sloping upwards about half way through the stem of the branch, and keep the incision open by inserting in it a small wedge of wood. In about a fortnight the wound will have cicatrised, and then if a little damp moss is tied over it roots will strike into the moss almost immediately, and then in two or three weeks the rooted cutting may be separated from the parent plant, and potted. The same mode is required for cuttings of *Statice arborea* and some others.

Next in our wreath let there be *CATTLEYA ELEGANS*—a splendid stove Orchid, but, perhaps, only a variation of *C. superba*. It was introduced from St. Catharines, Brazil, by Messrs. Backhouse, of the York Nursery, in 1852. It has club-shaped stems, ovate-lanceolate leaves, and a short raceme of large flowers. The sepals and petals are coloured bright, rosy pink; the three-lobed lip, furrowed and undulated, has its two outer lobes pale pink, but the centre lobe is large, and dark, rich purple.

Third in our wreath shall be another Orchid, but of more graceful form—*BARKERIA MELANOCALON*. It was introduced from Mexico into Belgium about the year 1818. The stem is straight; leaves ovate-lanceolate, distichous, and the flowers in a gracefully drooping raceme. The sepals are linear-lanceolate; the petals narrow-oval, and the lip two-lobed; the whole are partly rosy-lilac and partly purple. It flowers during the summer months.

Fourthly, let us have another Orchid, *ONCIDIUM HEMATOCYLUM*, but with very differently coloured flowers. It is one of the most beautiful and graceful of its very graceful genus. It is bulbless; leaves oblong, flat, thick, sharp-pointed, and very regularly and thickly spotted with brown. The sepals and petals have a warm greenish-yellow tint, strongly blotched with rich chestnut-brown; whilst the lip is of the richest crimson, softening at the base into a bright

rose colour. The crest, by which it may be distinguished from other Oncids, is like the letter W, having behind a flattish space, and in front a well-defined projection, with a small tooth on each side. It flowers in September and October. It is a native of New Grenada, whence it was imported by Messrs. Loddiges in 1847.

Lastly, and it must again be an Orchid, though of very different form and habit—*CYPRIPEDIUM LOWI*, or Mr. Low's Lady's Slipper. It is found growing on trees in the thick jungles of Borneo, whence it was obtained in 1846 by Messrs. Low, of the Clapton Nursery. The flowers open at the close of summer and early in the autumn. The sepals are ovate, downy externally, green, with a purplish tinge at the base. The petals are long, spatulate, curving, greenish-yellow, blotched with purple and violet purple; margins hairy; lip pouch-shaped, purplish-green, shining.

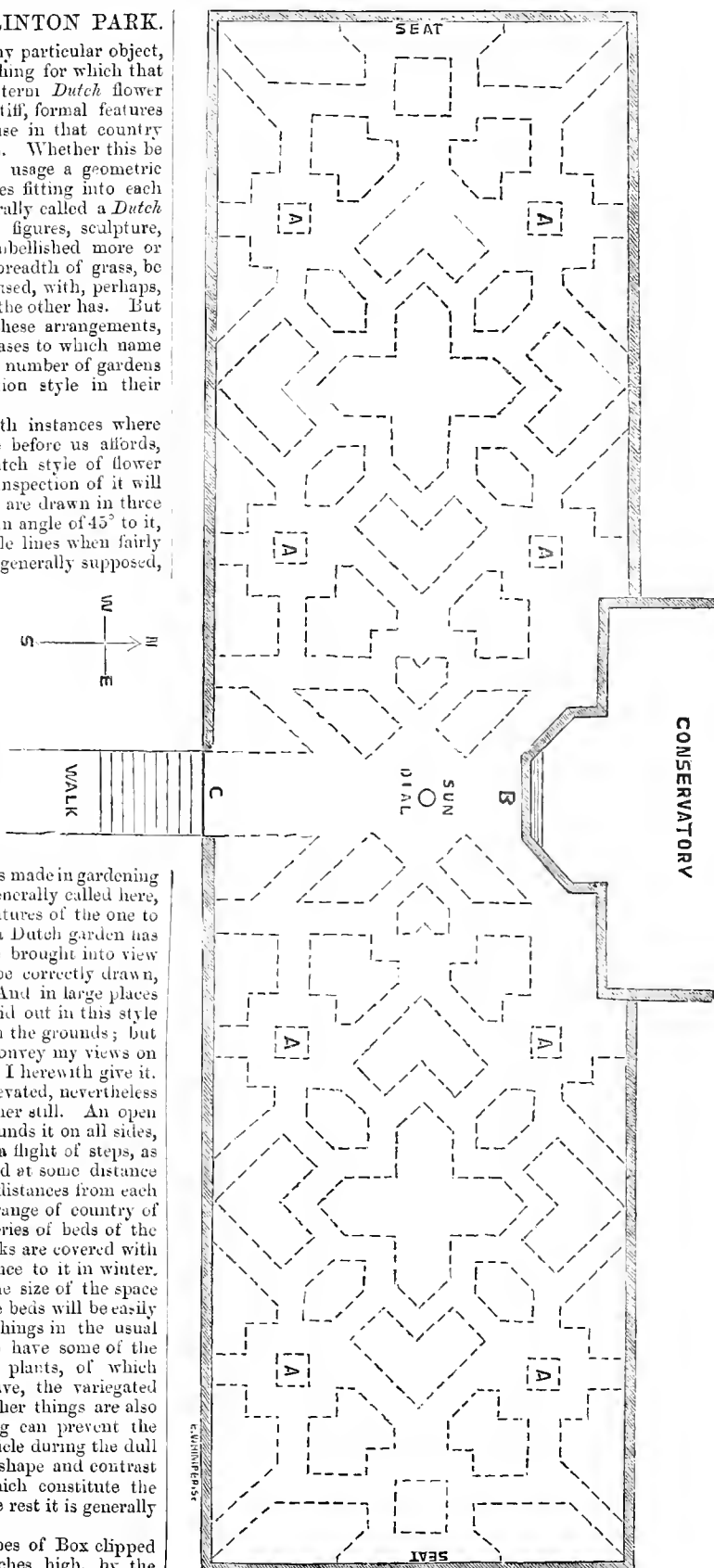
DUTCH FLOWER GARDEN AT LINTON PARK.

WHEREVER a national name is given to any particular object, it is supposed the object represents a something for which that country is famous: therefore, in using the term *Dutch* flower garden, we may reasonably infer that the stiff, formal features it usually presents were those in common use in that country when the style was introduced into England. Whether this be so or not, certain it is that by conventional usage a geometric garden, consisting of simple lines and figures fitting into each other and occupying a given space, is generally called a *Dutch garden*; but if, in addition to these formal figures, sculpture, vases and long-continued lines of walks, embellished more or less with symmetrical planting, and a large breadth of grass, be introduced, the term *Italian garden* is then used, with, perhaps, less claim to that country for its origin than the other has. But it is not necessary here to find fault with these arrangements, and it is also hopeless to determine in all cases to which name certain geometric gardens belong, the greater number of gardens present so much of the mixed or transition style in their composition.

Nevertheless, we now and then meet with instances where each class is fairly represented, and the one before us affords, perhaps, as good an example of the pure Dutch style of flower gardening as is usually met with. A slight inspection of it will show that the straight lines forming the beds are drawn in three directions only—which is a base line, one at an angle of 45° to it, and one at right angles. These three simple lines when fairly carried out give much greater variety than is generally supposed, and the number and shapes of flower-beds may be infinitely increased where there is space to do it by only using these simple lines; and to those not well versed in mathematics it is only proper to say that many mechanical works are done on that principle, and some time ago an engraving of a dwelling-house near Edinburgh appeared in the *Builder* paper in which these three lines and two more intermediate ones were brought into play with good effect. And assuredly gardening gives as much scope for variety as building; for with all the examples of ancient and modern art around them architectural inventions have made little or no advance, while a great stride is made in gardening matters, and the easy natural style, as it is generally called here, in a great measure superseded the formal features of the one to which the present engraving belongs. Still a Dutch garden has its advantages, as a vast floral display can be brought into view at one place, and assuming the edgings to be correctly drawn, the appearance is pleasing even in winter. And in large places where variety is wanted, an insulated plot laid out in this style is often as interesting as any other feature in the grounds; but a description of the one now before us will convey my views on this matter better than a mass of generalities, I herewith give it.

The garden here shown is considerably elevated, nevertheless the conservatory at the north side of it is higher still. An open work balustrading of a fanciful pattern surrounds it on all sides, except where it joins the conservatory, and a flight of steps, as shown, leads from it to the terrace below, and at some distance beyond are other flights of steps at certain distances from each other—the whole pointing to an extensive range of country of many miles. The garden is composed of a series of beds of the form shown all edged with Box, and the walks are covered with white shells, which give a pleasing appearance to it in winter. These walks are a trifle under 3 feet wide—the size of the space determining this—and from this the size of the beds will be easily guessed at. All are planted with bedding things in the usual way, and in spring we generally contrive to have some of the beds occupied with good spring-flowering plants, of which *Alyssum saxatile* is by far the best we have, the variegated *Arabis*, *Cheiranthus Marshallii*, and some other things are also used; but no reasonable amount of planting can prevent the raw earth from being the most prominent article during the dull winter months, so that it is to the agreeable shape and contrast with the green edging and white walk which constitute the appearance, but as a feature differing from the rest it is generally admired.

The eight small squares marked A are cubes of Box clipped to the proper shape, which is about 33 inches high, by the



same in width and thickness, and in winter these form prominent objects, and by the strictness of their forms are quite in character with the place they are in. It is right to say that the east, north, and west sides of this garden are backed by evergreens, excepting where the conservatory intervenes. A sloping bank and steps unite it to the ground below. A sundial as shown is in the centre of the walk in the garden, and the conservatory itself, though having a glass roof, has a front more resembling that of a Grecian dwelling with a parapet, &c., than that of a modern plant-house. All this I believe to be in perfect harmony with existing objects. Perhaps some one will say, More diversity of shapes might be given to the beds; to those I willingly leave the task of contriving such, and hope they will give the readers of *THE JOURNAL OF HORTICULTURE* the benefit of their inventions. At the same time, to those who have an aversion to acute angles, I may say that it was with a view to have a rigid example of the Dutch style of gardening that this set of figures was introduced. A more harmonious whole might easily have been had by curves and scrollwork, but as this belongs to another style it was thought advisable to exclude it entirely from the present example of a Dutch garden.

J. ROBSON.

ROYAL HORTICULTURAL SOCIETY.

THE Anniversary Meeting of this Society was held at the new Hall, South Kensington, on Wednesday last, the Earl of Ducie in the chair. A large number of Fellows was present, among whom were the Lord Bishop of Winchester, Earl Grey, Lord Llanover, Sir John Boileau, Right Hon. T. F. Kennedy, Colonel Higgins, H. T. Hope, Esq., &c.

The Report was read by Mr. Andrew Murray, Assistant Secretary. It commenced by accounting for the great delay which has taken place in the progress of the works in the Garden at South Kensington, which is attributed to the long winter and the subsequent strike of building workmen; but makes no reference to the time which was lost from June last year to the time when the frost set in, and during which period the building of the arcades and conservatory might have been greatly advanced. It then proceeds to state a few of the details about the sinking of an artesian well for the supply of the fountains, the erection of the memorial of the Great Exhibition of 1851, which has been placed at the disposal of the Society, and the ornamentation of the arcades by tazzas, vases, statues, and other objects of ornament.

The number of Fellows who have joined the Society during the last two years has been greater than in any similar period since the Society was instituted, these being 137, while during the two most prosperous years of the Society—viz., 1820 and 1821, the number was 625. Through this the funds of the Society have been largely recruited by their subscriptions and life payments, amounting to £13,300.

The general account representing the state of the Society before the recent alterations has worked its way into a satisfactory state.

The new charter, which has been some time in preparation, is expected to pass the Great Seal in a few days.

"The Flower and Fruit Committees have, under the superintendence of their respective Secretaries, Mr. Moore and Mr. Hogg, carried on their investigations in a most satisfactory manner, as is shown by their reports in the Society's 'Proceedings.' The Council have reason to know that these reports are regarded as valuable sources of reference by the gardening community. The Council, however, think that the time has now come when the publication of something of a more important character may be tried, and they are taking preliminary steps with this view."

Arrangements have been made for sending a collector to an interesting district in Brazil, and also with a collector already in South Africa, to collect and transmit seeds and plants to this country.

The spacious Council-room not only furnishes the Fellows with a suitable place of meeting, as well as accommodation for their minor shows and competitions, but removes any difficulty as to a hall for the delivery of lectures, and for the reading of papers on scientific subjects, should such be resolved on. The Council feel it their duty to express their gratitude to Her Majesty the Queen, and his Royal Highness the Prince Consort, President of the Society. It is only those who, like the Council, have had the privilege of seeing the time and thought bestowed by his Royal Highness upon the plans of the Garden in all their

details, who can appreciate the extent of that interest and the advantage the Society has derived from it.

Earl GREY moved the adoption of the report, which he considered highly satisfactory in every particular.

Sir J. BOILEAU, Bart., seconded the motion, which was adopted without discussion or a dissentient voice.

Upon the question of the election of the Duke of Rutland, Mr. John Fleming, and Mr. Robert Cooper, as members of the Council in the place of three members recommended to be removed,

Mr. H. G. BOHN objected to the principle upon which the names had been selected. How did the meeting know that the Duke of Rutland and the other gentlemen would accept the office, even if they were elected? He thought there was already too much of the horticultural representation in the Council, and that the private gardeners should be better represented. He (Mr. Bohn) was a member of a great many societies; but there was none to which he gave so much attention, or felt so much interest in, as this. He had done much for the Society by succeeding in keeping Chiswick Gardens in possession of the Fellows, and he hoped they would never consent to part with it. He therefore offered himself as a member of the Council, and he promised, if elected, to devote as much attention to horticulture as he had hitherto devoted to the question of the paper duties. (A laugh.) Although he had not received much assistance in his attempt to save Chiswick, the members now felt the great necessity for keeping it in their own hands.

Several other Fellows addressed the Meeting. The ballot having been taken, the scrutineers reported that, by an unanimous vote of seventy-one Fellows present, H.R.H. the Prince Consort had been re-elected President; W. Wilson Saunders, Esq., Treasurer; Prof. or Lindley, Secretary; and Mr. Jonathan Clark, Mr. Edward Rother, and Mr. George Paul, Auditors for the ensuing year; and that to supply the vacancies in the Council caused by the retirement of Henry Pownall, Esq., Robert Wrench, Esq., and Mr. Charles Edmonds, there were for the Duke of Rutland, sixty votes; for Mr. John Fleming, Clevedon, Maidenhead, sixty-one votes; for Mr. Robert Cooper, 152, Fleet Street, fifty-nine votes; for Mr. Henry Bohn, ten votes. The Chairman thereupon declared the three former, who had been recommended by the Council for election, to be the new members of Council for the ensuing year.

The CHAIRMAN then announced that Mr. Kelk had undertaken to complete the great conservatory by the 5th of June, to allow the first flower show to take place in it on that day. To look at the building the present moment that would seem impossible, but he believed Mr. Kelk would keep his word. (Hear, hear.) He also announced certain arrangements for the season, and mentioned that Her Majesty would not be able to open the Garden on the 5th of June, as promised, but that the Prince Consort and other members of the Royal Family would be present on the occasion.

Thanks were then voted to the Council and the Chairman, and the proceedings closed.

ENTOMOLOGICAL SOCIETY'S MEETING.

THE April meeting of the Entomological Society was held on the 1st of April, the chair being taken by the President, J. W. Douglas, Esq.

The curious connection between Ants and certain other insects which take up their abode in their nests, was again illustrated by the discovery, by Mr. E. Smith, of a specimen of *Myrmecodia funesta*, a small species ofrove Beetle, in the nest of *Formica fuliginosa*, the pitiful Ant, near Erith. The same gentleman also exhibited specimens of a small Beetle, *Silvanus frumentarius*, which had infested a jar of preserved fruit of the Lichi, received from China. The species in question is often found dead in sugar.

Mr. Stainton exhibited the larvae of two species of Moths belonging to the beautiful genus *Adela*, found upon the oak; also, the larvae of a species of *Neumatois*, feeding upon the green leaves of *Ballota nigra*.

Dr. Knaggs brought forward the medical case of a child, ten years old, which had discharged a larva of some kind of Moth with sixteen legs, during a fit of sneezing.

Mr. MacLachlan announced the capture of *Stenophylax concentricus*, a species of Caddis Fly (Trichoptera), new to Britain.

Mr. G. R. Waterhouse read a notice of several species of *Monotoma*, a genus of small Beetles which live in damp wood.

Mr. Francis Walker exhibited a large case of Hemipterous insects which he had received from North America.

WORK FOR THE WEEK.

KITCHEN GARDEN.

As the cleanliness of the garden for some time will depend upon the destruction of seedling weeds at this season, it is advisable to keep the hoe in frequent use in dry weather. *Basil*, if it has been forwarded in pots or boxes may be transplanted on a rich border towards the end of the week. *Carrots*, hand-weed the beds or hoe between the rows, as also the beds or rows of *Onions*, as soon as the weeds can be got hold of. If the first main crops have failed, sow seed of the Early Horn immediately. *Cucumbers*, the early planted will now have filled the frames, and be in full bearing, such would be benefited by a good soaking of manure water in a clear state, particularly when the soil, which should always be so, is of a light and open texture. The liquid manure when applied to be of the same temperature as the bed, and care to be taken when watering not to wet the leaves. If the fruit is required to grow very large, select the best-formed female flowers near the main stem, the rest to be thinned off. When seed of any choice sort is desired, it is safest to impregnate the flowers at this season, as it is less liable to get crossed with other sorts than when left later. *Potatoes*, water those in frames during dry weather. Hoe and stir the soil between the rows of the early out-door crops. *Peas*, stop them as they begin to bloom, and sow for a succession. *Parsley*, thin the early sowing as soon as it is up. Select some old plants that are very early-leaved for seed. *Rhubarb*, cut down the blossom-shoots, as they exhaust the stool very much. *Spinach*, thin the crop as early as possible after it is up; if this is neglected it runs to seed in a very short time. Where any main crops have failed no time should be lost in getting in more seed; if the soil is moderately moistened by rain, so much the better, but it should not be waited for, because the seed, if sown when the ground is dry and warm, the first shower will be of more service than if sown after it.

FLOWER GARDEN.

Preparations should now be made for bedding out. If the beds have not been properly prepared as formerly directed let them be so without delay. Keep grass lawns neatly cut; roll and sweep walks; weed Box, Thrift, and other edgings in moist weather. Put neat sticks to the Pinks, and thin the shoots according to the strength of the plant. Self-sown annuals—the *Mimulus* family, the *Forget-me-not*, Pansies, and other such useful little things—may be transferred with balls to fill up blanks. See that runners of the Neapolitan Violets are provided for the next winter.

FRUIT GARDEN.

Continue to disbud Peaches and Nectarines. Pinch off the foreright shoots of Apricots, leaving a leaf or two at the base: these will sometimes cause flower-buds to develop themselves. Thin out, if not already done, the suckers of Raspberries to about three of the strongest; to be staked out thinly, and well mulched with manure.

STOVE.

Attend to the shifting of specimen plants. A brisk temperature with atmospheric moisture to be kept up during the day, with a decline of many degrees at night—say 75° day, 60° night. Now is a good time to commence with a stock of *Begonias* for next season's display. The following are a few showy and easily grown kinds.—*Chimabarina*, nitida, discolor, manicata, ramentacea, and Martiana. As they go out of bloom to be allowed a short rest in a rather dry house, when they may be partially disrooted, and repotted, pruning in any straggling shoots. Keep them close, and syringe frequently, when they will soon commence growing. An abundance of light, and a fair share of pot room are necessary to insure fine plants. Let them be kept a good distance apart that the fine foliage of some of the species may have full room to expand.

GREENHOUSE AND CONSERVATORY.

Many plants will now be growing fast, and, therefore, will require liberal shifts. The *Pelargoniums* that are now showing bloom, if not of a gross habit, and the *Azaleas* and *Camellias* making their wood, may be supplied occasionally with a little weak and

clear manure water. To keep up a gay appearance through the latter part of summer and autumn it is advisable to provide a stock of *Pelargoniums*, *Verbenas*, *Calceolarias*, *Heliotropes*, *Fuchsias*, &c., to be shifted forward as they may require it, and to be kept by themselves as a reserve for that purpose. Look over every plant two or three times a-week, to be turned round, stopped, and supplied with pot room and water as may be required. Take the opportunity of an early hour in the morning to give a good washing with the syringe, except the plants in bloom, the house will then become airy and enjoyable by the forenoon. Frequently clean over the borders, and remove decayed bloom and leaves as they occur, that the house may present at all times a neat and fresh appearance. Cut down and place in a cold frame the choicest *Cinerarias* for suckers, and put in a stock of *Chrysanthemum* cuttings for an autumn display. The early-flowering plants of *Primula sinensis* now exhausted to be removed to a cold pit or frame. *Asters*, *Stocks*, and other annuals might be pricked out on beds under mats supported by hoops previously to transplanting to the open ground. W. KEANE.

DOINGS OF THE LAST WEEK.

SOWED a few Lettuce seeds for succession. Sowed Onion seed for drawing young for salads to come in after the thinnings of the main crop. Planted out Lettuces on north banks to succeed those at the foot of walls, as these again will succeed those between the rows of *Potatoes* protected. Protected the first crop of *Turnips* out of doors with old hurdles and branches drawn through them, as the slightest frost when the plants are in a young state has a tendency to make them bolt into seed-stalk, instead of forming good bulbs; thinned out the earliest under protection, and sown early; white Turnip-rooted Radishes having several times to stand instead of sweet young Turnips. Thinned early Carrot-bed a little, doing well for soups; the first sown out of doors just beginning to appear. Raised the hand-glasses over Cauliflower plants, and gave the forwardest a good earthing up and a free watering with manure water, to cause the heads just beginning to come to show well and compact. Watered those planted out of doors. Watered also Cabbages, to hasten the cabbaging process and prevent them, if possible, bolting up to seed-stalks, owing to the severe check they experienced in winter. Notwithstanding this care, owing to this bolting even in small plants, the Cabbage quarter will not be so uniform as usual. Threw a little soot and lime over the young seedlings of all kinds of Greens, Lettuces, &c.; and watered with soot and lime water all the transplanted Peas, alike to assist them in growth and set grubs and snails a flitting. Used for these purposes water ranging not below 70°; ground, notwithstanding the sunny days, still very cold, owing to the clear, cold nights. *Potatoes* out of doors scarcely beginning to show. Those in pots and about fit for use, removed under the shade of spruce trees pretty open towards the bottom, so as to admit the south sun, and yet keep off perpendicular frosts. Sowed Cucumbers, Gherkins, and Vegetable Marrows, preferring to plant them out when young, instead of getting stunted and knocked about in pots, before room can be had for them, and trained and pruned *Cucumbers* in bearing, and banked up the linings close to the top of the box of those in frames, so that the box might be heated and give out its heat into the atmosphere of the box, instead of greatly exciting or increasing the bottom heat, which when too strong is apt to make the shoots spindly, diseased, and insect-covered. In such circumstances sprinkling the sides of the box generally gives enough of atmospheric moisture, and provided the top temperature is thus high enough, a very little air may be left on at the back all night, which keeps the enclosed atmosphere sweet, and gives no encouragement to insects to come to sturdy plants when established. Constant stopping and removing very old leaves in succession, to give place to newer ones not so thick but the sun may shine freely upon them, are, with sweet, light, rich soil, the great secret of Cucumber growing at this season.

On Saturday, the 27th ult., the hail, sleet, and snow came down in earnest. The ground became so covered that we might have taken it to be Christmas time. As the wind was north-east and the thermometer within a degree or so of freezing after mid-day, it was thought that precaution would be the best policy, and, therefore, Cherries, Pears, Plums, Gooseberries, and Currants were roughly covered with laurel prunings and spruce branches. In the evening the weather was milder; but before

midnight the stars appeared, and by five o'clock on Sunday morning the ground was white and crisp. Little damage, however, has been done, but I am told that in many places the Currants in Wexham and the Gooseberries have almost all dropped from the trees. Watered small trees in pots, in orchard-house nearly finished; took out exhausted Strawberry-pots and introduced new ones, dining room now very scarce. Drove a dry hand over the Muscats in bloom in second house when the sun shined. Those who are afraid they cannot draw their hand lightly enough, should shake the bunch and slightly use a very soft camel-hair brush. I prefer the dry hand to everything else in thus assisting to set Grapes freely. Of course, the pollen dust is thus easily carried from bunch to bunch, and a very few minutes will suffice to go over a small house. If a bunch should not set well after this, there is no room for self-upbraidings. Many, however, do not set well, and there is no end of grumbling, because on some sorts of fine Grapes there is only a berry here and there, which "cannot be fashed," might often be given as the true reason of the mournful deficiency—often but not always, because frequently the parts of fructification are so weak and imperfect that no dusting or shaking will be of any benefit. If a fine-looking Peach-blossom has no female organ in its centre, no care employed can ever get a fruit from such a flower. Regulated and discoloured Melons in pits and frames; and here I am reminded that I promised to say something about the training, pinching, and fruiting of Melons, at least the plan I would always adopt when the work can be overtakein.

I do not know if there is anything original in the plan, but this I do know, that I never saw it practised nor mentioned in print before I commended it in some serial many years ago; and now I begin to think the plan must be a good one, as many contemporary writers recommend the same or a similar system. One of our old friends whose writings adorned these pages, might have muttered something about "ploughing with another man's beiter," and never acknowledging the obligation; but, provided a good plan is adopted, it is but little consequence as to who was the originator. This plan, then, combining simplicity and utility, is based chiefly on two facts. First, the Melon plant sometimes shows fruit on the secondary shoots, but more generally on the tertiary shoots, and, therefore, generally these third shoots should be depended on. The second fact is, that though you early obtain these tertiary shoots and fruit upon them, yet if there is not strength enough in the stems of the plant, these fruit will either not set or refuse to swell, and when you nip them off and wait for the next joint to show, you are apt to get your frame or bed filled with a mass of small twigs, and fruit later if got regularly at all, whilst the plant is apt to gangrene and canker from such frequent pinchings and loppings to keep the branchlets anything like in bounds.

Now, to apply these two facts, we will take a supposed case. That case may be varied at pleasure, just in proportion as you fill a light with one plant, or with two or more; but the plan understood, the mode of applying it will be similar, whether you take one, two, four, or six secondary shoots from a plant. Our supposed case will be, that you take two secondary shoots from a plant. As soon, therefore, as the Melon plant has made three or four leaves or so, you nip out its point. This in a short time will cause a shoot to come from the axil of each leaf. These will be the secondary shoots. As soon as we can see them, we pick out according to our supposed case, all these incipient shoots except two, using the point of a building-knife or penknife for the purpose. The plant we suppose is put out in the centre of a bed covered by a frame or otherwise; one of these secondary shoots as it grows is trained to the back and another to the front, or, if it please the practitioner better, a little advantage is gained by training both shoots of that plant to the back, and both shoots of the next plant to the front. However that may be, fact second now comes in for our guidance. As the shoot grows every large leaf formed at every joint is carefully kept, but every young shoot forming at its axil is nipped out with the penknife again, so that these secondary shoots shall be clear of side or tertiary shoots for from 15 inches to 18 inches from the main primary stem of the plant. After that the secondary shoot is allowed to grow without any side pinching; and when it reaches within 6 inches or so of the sides of the frame, back and front, an inch or so is nipped off its point—at any rate manage it so that when stopped there will be six or seven joints at the ends of the secondary shoots, from which the young tertiary shoots in the axils of the leaves have not been extracted. After the points

of the secondary shoots are stopped, these tertiary shoots will grow with great rapidity, and most of them will show fruit at the first joint, and then being nipped at the joint above the fruit there will generally be strength enough in the plant to set them swelling kindly at once. A great deal of cutting is thus prevented. Of course, it is of importance to get as many blossoms to open about the same time as is desirable, so as to insure their simultaneous setting, and this is much promoted by nipping off an inch or so of the end of the secondary shoots, and the tertiary shoots which come behind that will be more equal in strength and flower nearly at the same time. By this plan the fruit will be chiefly congregated near the back and the front; but they may be moved a little towards the centre if deemed advisable. Of course, even by this plan in some shy kinds tertiary shoots will not always be fruitful and set their fruit, and we must stop and try fresh shoots; but in general better crops and more regular ones are secured than by the plan of early stopping and getting the place filled with shoots and twigs before a fruit can be induced to set.

In pits when grown on trellises, or when so grown from pots, we prefer taking the first primary shoot to the height of the trellis, stopping there, selecting the secondary shoots, and training the same as above. When we used to grow largely in pits, we used to stop the plants when young, select one shoot, train it to a stick or a suspended line, and disbud the side shoots until we thought we had got strength of stem enough—say when it was from 2 feet to 3 feet long; and then, stopping the point as above, allowed the tertiary shoots from the axils of the leaves, perhaps seven or eight in number, to grow, almost every one of which would show fruit.

Flower plants much the same as last week.—R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c."* 162, Fleet Street, London, E.C.

LEAF LEAVES DESTROYED BY AN INSECT. *A Subscriber*.—Your young Chamaelirium plant leaves have been eaten away by that destructive Weevil or chrysothrips which, lay a cloth under the tree during the day, and then visit it at midnight when the Weevils are at work. Shake the tree, and the insects will fall on the cloth as if dead. Catch them, and kill them.—W.

STOPPING VINE-SHOOTS. *A Subscriber*.—The effect physiologically from stopping a Vine-shoot is to retain a greater amount of sap to the bunch of Grapes upon it than the bunch would have received if the sap had been allowed to be consumed in increasing the length and size of the shoot. It is necessary to leave one or two joints below the bunch; because those joints are furnished with leaves, and these leaves are absolutely necessary for digesting the sap before it proceeds to the berries for their development and ripening—in fact, the sap would not rise to the bunch in sufficient quantity if there were no leaves beyond it. This was explained in a paper on the "Science of Gardening," published in our first series, and which will appear as a volume ere long.

GRASS-LIKE WEED ON LAWS. *H. R., an Old Subscriber*.—It is, we think, the *Luzula pilosa*, or Hairy Woodrush, and your lawn must be in that case too much shaded; but it is *Luzula campestris*, or Field Woodrush, which only grows in very open places, still the only remedy is to spud it out. If your lawn is over-shaded, rendering it more open to the sunshine would destroy the *Luzula pilosa*.

MELONS AND CUCUMBERS. *J. A. P.*.—These cannot be grown to perfection in the same pit or house; Cucumbers require so much more moisture both at the root and in the air. You had better have a glazed division dividing the pit or house into two parts, growing the Melons at the hottest end. The fruits will come to maturity without impregnation; but, of course, they will be seedless.

CONCRETE WALKS. *A. P. S.*.—The thickness of the layer has nothing to do with the proportions of the mixture. Whether it be one of chalk to ten or to twenty of stones, it may be put on 2 inches thick. The top layer of lime and gravel may be composed of equal proportions. The depth of an inch of gravel for the surfacing should have no stones in it, and is best sifted on through a sieve. It is merely for colouring.

VARIOUS. *N. N.*.—Your cesspool refuse mixed with earth and ashes may be put on to the soil for any crop immediately after mixing. The sooner the better. Sprinkle your Black Currant bushes with Gishurst Compound to kill the aphides. You may put manure on your Vine-borders now though the Vines are in bloom, but do not dig so as to disturb the roots in any way. What "minute insects" are they which Gishurst Compound, tobacco, sulphur, and aphis pastilles are all in destroying? If you mean the white aphis, or mites in the soil, they do no harm—they live upon decaying vegetable matters.

GROWING FRUIT-TREE CUTTINGS IN WATER (*Deronsire Vicar*).—The plan of rooting soft-wooded cuttings in water is not at all adapted for fruit-tree cuttings, nor is it nearly so good or so easily managed as the common way for any hard-wooded cuttings.

It is with poultry as with everything else, and it may be called a truism if we say that the scarcity of the article causes

its great value. It is so; but the recollection of the fact prevents discouragement, and when it is found and known that the great consumption of the London season is supplied by the small contributions of a large number of breeders and an atom, it may afford consolation to some Alnashar who finds the golden dream of scores of chickens reduced to five or six. They will be worth more than three times their number three months later, and will make a pleasing item on the right side of the account-book.

The nearer we approach to the natural season, the less trouble there is in rearing poultry; as a certain consequence the price becomes less. That time is drawing nigh, and with its arrival the interest in such papers as this will decrease. This will probably be the last, and we will therefore repeat two or three capital rules to observe in the supply of the London market during the spring.

The fowls must be young, and there should not be a mixture of ages in strong contrast. It matters not that of fourteen chickens three should be four months, while the others were three months old, but there should be no juvenile old lady in the shape of a "tardillon" of last year's mixed up with the chickens of this. Not only is her influence bad on her younger associates, but fattening to an old fowl is like painting to an old woman—it may give an appearance of youth, but that is all; it does not make a fowl tender. Next, as in the affairs of men, so in poultry, there is a tide which must be taken at the turn to lead to fortune.

There is a period of scarcity of which advantage must be taken, and large prices will be the reward; but one day too late, is too late. The day there are more fowls in the market than are wanted, large prices are over. Let us take a case in point showing the importance of a few hours, and the alteration it makes in the value of perishable goods. The season for Grouse begins on the 12th August, and many who will not eat a bird out of season, must and will have them on their tables on that day. Any young Grouse killed on the morning of the 12th, and sent up by express on that day, will make 12s. or 13s. per brace. They will make little less on the morning of the 13th; but after that day a fall of 4s. or even 6s. per brace is common, because there is time for the arrival of birds from all parts. The tide is turned.

If, then, you have chickens now tolerably fat, and of the size, or nearly of the size, of those we mentioned in a former paper, we say, Send them at once to market. Like Friar Bacon's brazen head, we say, "Time is." If you wait till they are a little fatter, or a little larger, or if you have an idea they will be dearer, we fear we shall have to say, "Time was."

If you will profit hereafter by this homily, which we read to you every year, we will insure if your chickens come at the right season so will the price. "Time will be."

PROFITABLE POULTRY KEEPING.—No. 4.

(Continued from page 87.)

AFTER-MANAGEMENT.—When the hen comes off of her own accord, you may know all is right with the chicks. At once confine the hen under a coop (or hutch), and allow the chicks but a limited run for the first fortnight, especially guarding them from contact with wet grass—they cannot, in fact, be kept too dry. Thus care should be taken that the water-pans are shallow. Many things are recommended as the best food for young chicks, but I never found anything answer so well as crumbs of stale home-made bread; and as to the different nostrums propounded, I notice them only to condemn them *in toto*. The hen should be well fed on grain, meal, and steamed potatoes, and grass and leaves from garden vegetables daily. It is a good rule to remove the coop a few feet every day or two, so that the hen may have a fresh and dry soil, and she should have a moderate quantity of sand or light mould placed under her coop in which to bathe. In a month or so give the hen her liberty, feed her chickens with her, and they will thrive right well and merrily. I found, however, that those chicks did best where the hen, after having her liberty during the day, at night was put under a coop, she then nestled her young instead of flying on to the perch.

MANAGEMENT OF CHICKENS WHEN DISCARDED BY THE HEN.—In about eight or nine weeks, according to the season of the year, the hen will forsake her brood. Now part the stronger chickens from the weaker, and hasten on by generous food for sale. Much might be written on the all-important point of

feeding; but I shall give that course which answered well with me. I fed four times a-day—oftener if I saw occasion, or the weather demanded it. On this point no rule can be laid down, it must be left to the judgment.

1st meal.—Tallow greaves and dry barley.

2nd ditto.—Steamed potatoes, mixed with steeped oats, rice, or crushed Indian corn or meal.

3rd ditto.—Barley, tail wheat, and tallow greaves.

4th ditto.—Dry grain.

And twice a-week mashed bran.

I took care that on no two consecutive days did I feed exactly alike, for every animal thrives on variation of food. Besides the stated feeding times, all the remnants from the table and the kitchen, such as crumbs, meat, bones, and vegetables, were thrown down to them. In the winter and early spring months bullock's liver and other cheap animal offal should be boiled for both hens and chickens; put the broth therefrom when cool into their drinking-pans, and chop up the meat, mixing it with their grain, or giving it alone.

"And is this all?" my uninitiated reader may ask. "Yea, truly all, the whole secret."

I shall now suppose my chickens three months old.

"Well, my friend," I say to the poultry dealer who calls, "what will you give me for this lot?"

"Well, chickens is down, they ain't worth ne'er so much as they was last week."

"Ah, is that so? Now, though you are called a higgler, I don't like haggling: so, at a word, what is your offer?"

"Master, I can't be buyer and seller too."

"Well, my price is 3s. the couple for the smaller chickens, and 2s. 6d. for the larger."

"Then I shan't get no profit by 'em."

"They are worth it, and I do not feel disposed to take less."

"Then it's no deal."

And off goes the higgler. But wait a wee. He well knows they are worth the money, and in half an hour or so returns, pays you the sum asked with the air of a man who has done you, ties the chickens in couples, places them in his basket and departs.

And now, reader, what has been my profit?

Over 60 per cent. assuredly; and if these said chicks had been less than Pigeons early in March, I could have had 2s. 6d. each, and my profit would then have considerably exceeded 100 per cent.

"And not bad interest either," say you.

Next week I shall hope to show you how to do more than this.—LEIGHTON.

(To be continued.)

I HAVE read with much attention the interesting articles in the two last Numbers of your Journal on the subject of "Profitable Poultry Keeping;" and although fully impressed with the conviction that fowls may, with proper care, be made as remunerative as other stock, still I cannot allow "LEIGHTON'S" balance sheet to pass unchallenged. Statements to the effect that about 90 per cent. profit is to be realised by poultry keeping, and that a nett return of £25 7s. is to be calculated upon from every 100 hens kept *ad infinitum*, will, I am confident, cause only disappointment, and do more harm than good. Many fascinated, no doubt, in the first instance by such a favourable Dr. and Cr. account, might afterwards give up the pursuit in disgust when they found their calculations at fault, and how little dependance was to be placed on the dicta of those who put themselves forward as authorities in such matters.

It would have been more satisfactory had the amounts charged for "rent, management, loss, and interest," been carried out separately, as it is quite impossible to arrive at any conclusion as to the amount of interest that has been charged on the original outlay. This may appear to many a matter of small import; but when we consider how short is the natural term of life allotted to the domestic fowl, and that, in addition to the chances of death from disease and accidental causes, they cease to be remunerative, and, indeed, become (as far as profit is concerned) virtually dead, at the end of their third or, at the most, their fourth year, we should debit ourselves with a very heavy amount in the shape of interest. Any one embarking capital in some perishable article, which he knows will at the end of three or four years be almost valueless, would expect to receive interest at the rate of 35 or 40 per cent., otherwise he would be sadly out of pocket by his investment.

With these remarks, putting on one side entirely the subject of interest, I will explain why I consider "LEIGHTON" far too sanguine, and how his style of book-keeping would mislead and disappoint the unwary.

In the first place, then, it does not appear how the original stock was obtained. We read that it consisted of "every and no breed, from the common barndoor to the stately Spanish and aristocratic Game." Now, 100 nice young hens of this description, together with twelve or fourteen good cocks, would, by the time they were safely roosted in "LEIGHTON'S" poultry-house, have cost a good round sum! I apprehend he would choose young birds about a year old, the cocks, perhaps, a trifle more advanced in years, many authorities (Mr. John Bailey amongst others) deprecating the principle of breeding from chickens—that is, birds all of the same year. The whole of this lot would, therefore, have to be swept off, and entirely replaced by young birds, after they had been in "LEIGHTON'S" possession two or three years, by which time the hens would have passed their third and the cocks their fourth year. At this age they would sell for, comparatively speaking, a mere trifle, being as egg producers unprofitable, and for the table both dry and tough.

Now, "LEIGHTON" states, that "each hen will rear on an average seven chickens;" but if he sends every individual chicken to market, as appears by the credit side of his balance sheet, he makes no allowances for "death vacancies," nor for replacing the old birds, as from age they become unremunerative, and not worth keeping.

We see that the Spanish formed part of the stock, and there were, no doubt, many others of what are commonly termed "everlasting layers." Many hens would, therefore, be compelled to sit twice, and hatch broods during inclement weather, causing the average reared and actually sold to fall below seven. I will not comment on the prices obtained for chickens, but I imagine they have to be sent to market some distance—perhaps to London!

Again, "LEIGHTON" states, that "a hen will lay on an average 120 eggs; but if he parts with them all, from whence does he derive the 1300 necessary to complete the requisite number of sittings? and from what source the half dozen or so required for the young chicks in their early days?"

If "LEIGHTON" can obtain 1d. for each egg taken all the year round as a wholesale vendor he is, indeed, very lucky; but does he receive that price from a local dealer, who, having to sell again, I should not think could be so liberal in his offers? or are the eggs consigned to some London tradesman as "new laid?" In the latter case a very considerable daily expense would be incurred for carriage.

And now to conclude my remarks with the article of food, which is charged at £31 16s. "LEIGHTON" reckons on sending 700 chickens to market, and he says "the expense of rearing chickens up to the age of from ten to twelve weeks did not much exceed 1d. per head per week." Now, of course, a great many more than 700 would be hatched in the first instance, living some of them many weeks, and, therefore, costing many a penny; but giving "LEIGHTON" the benefit of every doubt, we will discard from our minds all but the 700 chickens, which at ten weeks old are sent to market. How much have they cost in food according to "LEIGHTON'S" own statement? Why, reckoning them at 1d. per head per week, £29 3s. 4d. within a few shillings of the amount charged for food. This is, be it remembered, at 1d. per head; but we are told that although not much, still that the expense *did* exceed the weekly 1d.: the extra shillings are, no doubt, therefore, this trifling excess. Now, will "LEIGHTON" say on what the 100 hens and the twelve or fourteen cocks existed during the year?—did they live entirely on "the good grass run?" At all events, they do not appear ever to have been fed; and yet I do not myself know how to make a hen lay 120 eggs and hatch a brood rearing seven chickens upon nothing but air and a good grass run.

I have, I fear, already trespassed sadly upon your valuable space; but such "loose" statements, if allowed to go forth unexplained or uncontradicted, would do but little in bringing forward the profitability of poultry keeping, but tend rather to damage the good cause, and make those who may now be receiving a very fair return for the trouble and outlay annoyed and discontented. In conclusion, then, I will briefly recapitulate the reasons for my taking exception to "LEIGHTON'S" method of furnishing a Dr. and Cr. account.

1st. No charge is made for the purchase of original stock.

2nd. No allowance is made for filling up vacancies from own rearing, and ultimately replacing the old birds.

3rd. No eggs are deducted from each hen's produce for sitting, nor for the few requisite for the young brood.

4th. No charge whatever is made for chickens or eggs being taken to market.

5th. No charge whatever is made for the sustenance of the original stock.

I trust this will be found of sufficient value to justify your giving it a place in your next Number, in doing which I know you will oblige all interested, and—E. C. C.

PIGEON JUDGING AT SUNDERLAND.

You would oblige by allowing a small space to answer the "FANCIER" as regards the Pigeon judging at the Sunderland Poultry Show, or rather to give Pigeon exhibitors some idea of the cause why the Judge was chosen in the town.

In the first place, the Society is composed of twenty-three members, twenty-two of which are poultry fanciers, and know little or nothing about Pigeons; and we are sorry to say the Pigeon fanciers of this town have not supported the Society either by subscribing or giving information, and not one of the members has been in any way connected with a poultry or Pigeon society before.

"FANCIER" has not given one word to encourage the members to carry on the Society, or amend any mistake. The reason why a Sunderland gentleman was chosen for Judge was—we applied to one at Newcastle who was recommended, but he declined. I believe "FANCIER" was also recommended, but the Secretary had mislaid the letter and had not his address, or else we think he might have been chosen in preference to one in the town. There were so few entries until the last day from a distance, and having so little time on hand, Mr. Kirton was recommended as a suitable Judge, he having been both Pigeon and poultry fancier for many years. I believe he gave his judgment to the best of his ability—he was known to very few of the Society personally. Should the Society go on, I hope Pigeon exhibitors will send their entries sooner. The Society will take every pains to prevent any complaint in future.

Five-eighths of the members are only working men who have subscribed a considerable sum independently of a great deal of labour, and are considerably deficient; and unless the neighbouring gentry lend us help, many of the members will be inconvenienced in making up the deficiency.

If there had been a surplus it was intended to be reserved for the next Show. No member would have derived any benefit except the pleasure of getting it up.

I think it would look better if "FANCIER" and others would help societies in their commencement, instead of endeavouring to knock them down. There may have been other deficiencies, being the first Show, but I hope they will be looked over, and we shall be better able to place the right men in the right place next time.—FROM THE COMMITTEE.

[This letter is sufficiently explanatory, and we only regret learning from it that there is any chance of the members of the Society being losers by the Exhibition. In such a town as Sunderland this ought not to occur; and we hope that the gentry and tradesmen will subscribe at once, not only to meet deficiencies, but to enable the Society to continue its exhibitions. Such Shows are not encouragements to a useless fancy, but promote the production of superior poultry and eggs. Enormous quantities of these are imported annually, and more would have been required from abroad if the improvement and increased fancy for poultry keeping had not been promoted by such exhibitions. We recommend the Committee to canvas the town and its neighbourhood for subscriptions.]

TURNED-CROWN PIGEONS.

In the JOURNAL OF HORTICULTURE of April 23rd, Mr. Oates says he cannot understand why I do not include the Turbit among Turned-crown Pigeons. In explanation, I beg to inform him I consider the Turned-crown as a recent innovation, and a departure from the true form of that variety (in confirmation of which, I refer him to all the older writers on Pigeons) nor can I regard it as any improvement. Fanciers have not paid much attention to the peculiar form of head of the Turbit, and

its true shape has, therefore, been much neglected. The head should be broad, angular, and flattened; the orbicular ridges much raised, and the eyes prominent. The best example I can offer is the head of a frog. The short beak, the gullet or dewlap, and the frill on the breast, are the chief properties of the breed, colour or feather being the finishing stroke; and I think the turned-crown spoils the appearance of the head just as it would do in a Tumbler or Carrier.—B. P. BRENT.

PARROT DELIGHTING IN BATHING.

I HAVE had a Parrot nearly fifteen years which, I can assure you, enjoys a shower-bath most intensely. The servant places her on the sink and turns the tap gently. Polly spreads her wings and turns herself in all directions for the grateful shower, and if the water ceases she will flutter and make a noise until it flows again. She is a large, green, yellow, and red bird, and very merry. Another and smaller bird will often follow Polly's example, but not with the same gusto the old one evidently feels.—E. H. D.

THE RABBIT (*LEPUS CUNICULUS*): ITS HISTORY, VARIETIES, AND MANAGEMENT. (Continued from page 70.)

THE ANDALUSIAN RABBIT.

THIS, the largest species known, is a native of Spain. It is bred in Paris under the name of "Ram Rabbit," because its head is large, and its forehead round, its ears large and hanging like those of the Half-lop; its throat also is large and forms a dewlap. Its fur is of a russet grey colour, and is smooth and lustrous when it is well cared for and in good health: but when neglected or sickly, it becomes curly and like wool.

M. Didiex states that this Rabbit will attain an enormous weight, even so much as from 16 lbs. to 20 lbs., and that it is the most robust race known.

The breeding of this Rabbit is receiving much attention in Paris and its suburbs, and the finest specimens fetch enormous prices. M. Millet states that he has seen 130 francs paid for a single female Ram Rabbit, and that M. Gerard, his coadjutor, paid not long ago 160 francs for a pair. Those who have this breed are so tenacious of keeping it to themselves, that it is extremely difficult to procure fine specimens without paying very high prices.

The breeding of this Rabbit is deserving of special attention, it being a wonderful producer of flesh, rendering it the most profitable species that can be bred for food. At eight or ten weeks old it ought to weigh as much as the common tame Rabbit at eight or nine months, thereby saving the expense of six months' keep, and the time and trouble in tending it; besides, the flesh is more tender, juicy, and delicate in appearance.

There is another large variety which is very similar in appearance to the Andalusian, and known in Paris as the ROUENNAIS or BULLDOG, because they have a square head like the dogs whose name they bear. Their weight is often as much as 14 lbs. In colour they are usually a light fawn, but sometimes a light grey. Their ears are long and upright, but are often Half-lop. Many of these Rabbits are imported and sold here as *Patagonians*. I think it not at all unlikely that this is a cross of the Patagonian, although it differs in appearance.

The real Patagonian Rabbit has remarkably short ears and a large round head, which when young, and seen at a distance, gives it the appearance of a cat. I do not think there are many pure bred ones in this country which, considering their size, is to be regretted.

The next on my list of large Rabbits is the *Belgian Hare-coloured Rabbit*, large quantities of which are imported, known and sold as French Hare-rabbits; but they are not hybrids as the name implies. They attain a large size, but are said not to be so fruitful as many other varieties; their ears are large, the head smaller than in either of the before-mentioned varieties, and in colour they are very similar to a Hare.—R. S. S.

(To be continued.)

BATH AND WEST OF ENGLAND POULTRY SHOW.—We are informed that entries will be received until the 13th inst., after which none can be received.

HEN CANARY NESTING BUT NOT LAYING.

I UNFORTUNATELY lost a Goldfinch last autumn, which for two years had mated with a hen Canary. I procured a cock of her own kind, wishing to breed Canaries. She has built her nest, and constantly sits in it, but without laying; and having a young mule bird, one of her own, and hearing them frequently answering one another though they cannot see one another, I wish to know whether that would have any effect and interfere with her laying and breeding.—E. M. A. L.

[I do not think it necessary to remove the mule, as the hen Canary's hearing him can hardly be the cause of her not laying. More probably it is the unfavourable weather, and that she will build again, and then lay, unless she is too old, or proves barren from some other cause.—B. P. B.]

BEES DYING—HIVES IN A BARN—PEACH CROP ON OPEN WALLS.

THE "OLD SUBSCRIBER" who wrote some time ago about a bee-hive in which the bees were inactive regrets to say they all died a few days after. The hive had a large quantity of good honey in it. When the combs were taken out there were not more than about sixty bees clinging to the combs; all were dead, but not decomposed. They were at this time a fortnight dead, and the only odd appearance about them was, that a few had under the rings of their body an appearance of a pure white substance. It did not look like mould. The combs at the lower part of the hive looked thick, and as if damp had affected them. Could it be that the hive perished from damp?

Would it be a good or bad plan to place hives in a large airy barn, having a hole made in the wall where the bees would have egress and ingress towards the south? The wall is 2 feet thick. Would it be bad for the bees to have to creep so far before gaining access to their hive?

Is the peach crop on open walls generally defective this year, from the last wet summer not permitting wood to ripen?

Some geraniums late cut down, and not yet repotted, look badly. Would it be advisable to keep them in the open air for autumn bloom when potted?

[The cause of the loss of your hive appears to have been the death of its queen. How far it may have been injured by damp we cannot determine without ocular inspection. The peculiar appearance on the abdominal rings of the bees themselves probably arose from a fungoid growth.

We have known bees do well in a house in spite of the disadvantage of having to traverse a thick wall before reaching their habitation.

The peach crop on open walls is generally defective, and probably from the cause you mention.

We cannot give an opinion about the geraniums, not knowing either their names or age.]

BEE-HIVES AND THEIR APPURTENANCES.

(Continued from page 90.)

ADJUSTER-HIVE.—Your apianian readers, the novices particularly, must feel grateful to "A DEVONSHIRE VICAR" for so ably pointing out the defects of the rather *Irish* depriving-hive, a description of which had crept into your columns, and introducing Mr. Fox's vastly superior device. At a first glance, in addition to the fixed breeding space, the peep through the back window in the sketch shows rather many openings for the escape of the heat and the queen into the super, easily remediable by corks in the one case and slips of wood in the other. Mr. Fox is also too good an apianian not to know that either for his own use or the market one completed box honeycomb, and a second partially filled (useful for feeding or a fresh start), is much more valuable than a larger box uncompleted. However, to counterbalance this we have his exceedingly ingenious mode of lowering the top to facilitate a start, and by judicious raising to tempt to an accumulation of store in the super, more certainly obtainable than by any other mode I have yet seen tried. With this passing remark I will now describe the appurtenances of the apiary, taking up first

BEE FEEDERS.—All metals, from their coldness, are objectionable for bee feeders—none more so than zinc, from the deleterious powder that collects upon its surface, rendering it an injurious

agent to supply food in a liquid state to either bee or beast; for this reason I employ it as little as possible about the apiary. I also dislike a close-fitting lid upon the metal. Bees when fed get excited; their respiration is increased, the vapour condensing on the glass damps both them and their comb. Wood would do were it not for its liability to split if cut out the solid, and leak at the seams if jointed: I, therefore, employ troughs of earthenware made for the purpose, and roughened inside. They are 9 inches long, $5\frac{1}{2}$ inches broad, and $1\frac{1}{2}$ inch deep, all outside measurement, sold by Mr. John Grant, 23, Howard Street, Glasgow. The float is of thin oak veneers; the holes bored with a hot iron into any fanciful pattern. The troughs I fit (loosely for washing-out sake) into box feeders—the one (fig. 7) is used for flat top bar-hives, is fully 9 inches long by $6\frac{1}{2}$ inches broad inside, is 4 inches high at top, sloped to $2\frac{1}{4}$ inches at bottom. There are half-inch blanks in the bottom on either side of the trough through which the bees ascend when the slides on the top of the hive are drawn. It is worthy of notice that this breadth fits equally the one-and-a-half and the one-and-one-eighth bars. The other (fig. 6) is fully 9 inches long by 7 inches broad, $4\frac{1}{2}$ inches high at back and 3 inches in front, has $1\frac{1}{2}$ -inch-square slip of wood nailed inside at the back, through which a sloping cut inwards and upwards is made to correspond with the entrance in the hive. The feeder is placed charged on the landing-board; a tap or two causes the guard to run up into it; a sip, and he is off with the news, when a general rush takes place. This feeder is used principally for round-topped hives,

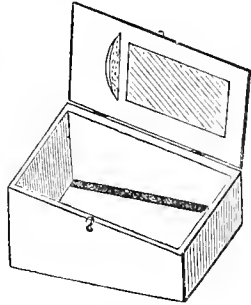


Fig. 7.

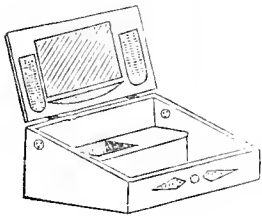


Fig. 6.

and is equally easily adapted to straw hives of circular shape by a little addition being added. Take a bit of three-quarter-inch wood, 1 inch longer than the entrance in the hive. Cut a corresponding entrance in the wood, scoop out the back part to fit the straw bands, and then sprig it on to the feeder. This prevents the escape of a single bee. It is better to be wrapped about with flannel, or some warm stuff, should the evening be frosty. The feeding is seen through the glass pane in the lid of both. The bevels in the box and the openings fitted with zinc are intended for ventilation. The lids are raised with small brass hinges, and kept closed with little "hooks and eyes." Should the weather be mild (bees never ought to be fed during cold, except in desperate cases, then the last mode to be mentioned is most suitable), I have always found a strong colony absorb a larger quantity of food in less time, and, I think, with more pleasure to themselves, by being allowed to cluster from the combs upon the vessel (placed as close thereto below as possible) containing the food, than by any way I have tried, which also saves the few lives generally sacrificed by feeding in a separate vessel. Any poor fellow getting bedaubed, crawls into the cluster and is licked and warmed. I have, therefore, in all my hive-boards (see fig. 11 next week); a space cut working like a solid drawer, of sufficient dimensions (10 inches by $5\frac{1}{2}$ inches) to allow the feeding-trough to be slipped in its place below and within the hive without necessitating its being lifted. Should the combs not be wrought down their full length, then the trough must be raised on a block of wood close to them. I give my largest supplies by this simple mode.

The bottle plan, so kindly introduced to your readers by "A DEVONSHIRE BEE-KEEPER," was known and practised in that centre of bee-learning, Ayrshire, long before M. Hermann wrote. It is rather a slow process; I prefer giving a larger quantity by any of the previously-mentioned modes in the evening, and find it gone in the morning, which does not interfere with the day's work, nor attract robbers. It does, however, afford a supply to a weak colony without much excitement. I use for the purpose a clear conical soda-water bottle, on which the thatch rests nicely. My flat-topped hives have an inch-and-a-quarter hole cut with a brace and bit between the two central

bars, into which I place the neck of the bottle. They get clustering round it, and it is all the sooner emptied. The "QUERIST" afraid of the two or three bees clinging to the net is unworthy of the name of bee-keeper. The wooden block recommended by your correspondent is useful in addition, and keeps it all the more steady, particularly should the hive be flat-topped, and covered with thatch. The principal benefit of this plan, however, is for *spring feeding*. Some hives the apianian may be anxious to stimulate will stontly refuse to take the food by any other mode than the bottle—perhaps averse to move off the brood. As constant dropping will wear out the stone, so will it the stubbornness of our wee favourites. The food gets on their coats and comb; their cleanliness necessitates its being licked up, and perhaps their inborn thriftiness of character has something to do with it, too, which I never knew to be exceeded, were it not in one solitary instance—that of a farmer's wife, not a hundred miles from where I write, who, finding a large rat drowned in her cream, seized it by the tail and drew it out; but grudging the rich coating on its fur, actually licked the loathsome brute that nothing might be lost!—A RENFREWSHIRE BEE-KEEPER.

(To be continued.)

BEES DO STORE HONEY IN HOT CLIMATES.

THE editor of the apianian department of one of your contemporaries has for the last two weeks been advocating the notion, that in warm climates bees will cease to provide against "a winter that never comes!" *Barbadoes* is one of the localities especially referred to. Now, turn back a few weeks (I have not the papers to refer to), and you will find the *West Indies* specially named as the source whence our supply of honey is derived, and the rise in price of "West India honey," consequent on the failure of the home supply, is particularly stated! If bees will not store honey in warm climates, West Indian honey would be altogether unknown, instead of being the cheapest and most plentiful in the market.—APICULTURIST.

[There is no doubt of the fact that bees do store honey in tropical climates. Mr. Krapf and other travellers in the interior of Africa mention honey as being there a common article of food.]

STRANGE HABIT OF BEES IN PERU.—Mr. Sandison, son of the Rev. Mr. Sandison of this place, sends the following interesting fact in *Natural History* from Arequipa, Peru:—"A few years ago, a German got out a few hives of bees—an insect formerly unknown here. The first year he obtained a plentiful supply of honey; but year by year it decreased, until now the animals will hardly collect any. And why? Our climate is so equable that flowers can be had all the year round, and the sagacious animals having discovered this fact, have evidently lost the instinct of hoarding honey for a winter that never comes.—(*Breckin Advertiser*.)

VARIETIES.

THE MISTLETOE.—At a late meeting of the Botanical Society of Edinburgh, a paper was read by Mr. M'Nab, on "The Effects of the late Frost on Trees and Shrubs," and among others we find an interesting fact, relative to the Mistletoe—viz., that where growing on apple stocks or on the branches of *Mespilus canadensis*, it was greatly cut up and injured, but where growing on the oak or white thorn it came through unscathed, and is now quite green and healthy.

[May not this superior hardihood of the oak-sustained Mistletoe account for the especial veneration it received from the Druids? In that age of forested and undrained England, its climate was much more severe than now, and the Mistletoe we may conclude, consequently, was frequently destroyed on other trees than the oak. If on this tree it was uniformly uninjured, the Druids would at once consider it as under some especial Providence.]

RHUBARB SYRUP.—The aperient qualities of green Rhubarb, and its conduciveness to health being now so well known, its usefulness does not admit of doubt; but allow me to remark that it is best used in the form of syrup, eaten with plain bread, as are all cooked fruits, and not with pastry, especially by invalid persons who have bilious constitutions. Pastry is like strong drinks—it only serves to indulge the appetite rather than

to impart to it any real good, causing secretions in the stomach beyond their natural order. To make Rhubarb syrup is simply to cut into small pieces, simmer it over a slow fire one hour, with a very little water (or it may be baked in a jar); then strain it, and add sugar to the palate. When it is young it is like apples—unnecessary to be peeled. If sweetened with the best sugar (loaf is best), it will, if preserved air-tight, and set in a cool place, keep good for many months.”—A. HARDY, *Seed Grower, Maldon, Essex.*

SEAWEED AS A LINING FOR DWELLINGS.—M. E. Lagout, has presented a report to the Paris Academy of Sciences on the employment of seaweed, applied in layers against the thin walls of habitations, to prevent sudden variations in and excess of temperature. The marine algae, such as seawrack, may be termed a *seaweed*, which has this advantage over ordinary wool—that it does not harbour insects, and undergoes no change by dryness or humidity, provided it be not exposed to the solar rays; in that case it undergoes a complete transformation; from being brown and flexible, it becomes white and almost rigid. In the dark, on the contrary, it is unchangeable, unfermentable, imputrescent, uninflamable, and unattackable by insects. At first it has the objection of being hygrometric, but a single washing in fresh water removes the salt, and then its properties become so beneficial, that a celebrated architect has styled it the “*channel of health for habitations.*” It has been applied successfully between the tiles and ceiling of a railway station: also in a portable house intended for the use of officers at the Camp of Chalons; also double panels, the intermediate space being filled with seaweed, have been prepared for the construction of temporary barracks at the Isle of Remion. The Consulting Committee of Public Health, the Society of Civil Engineers, the Council for Civic Structures, &c., have expressed their approval of the judicious employment of the marine algae, and state that the popularisation of this process will be of great service in dwellings, especially in those of the humbler class, as it renders them both more agreeable and salubrious. It can be obtained for about 20s. the ton, which quantity is sufficient for upwards of a hundred square yards of roofing.—(*London Review.*)

OUR LETTER BOX.

TUMOUR IN HEN'S CROP. (*J. A. P.*).—If there is a wen or tumour, an operation will be needed. See what was said last week upon a case nearly similar. If the hen is three years old she had better be killed, for she will be a bad layer in winter when eggs are dearest.

GROUND OATS. (*J. M.*).—There is no particular mill used for grinding oats for converting them into poultry food. The meal of the oats should resemble that of the barley, so well known as pigs' food.

BANTAMS DYING SUDDELY. (*C. P.*).—We have carefully dissected the Silver Bantam, and find that she died of stoppage, which had apparently been some time coming on. The crop was in its natural state, and contained corn, soft meat, and grass. The gizzard was unusually full of stones; and not only the gizzard but the intestines, up to the place where the stoppage occurred. This was caused by swelling and ulceration, which allowed the passage only of the smallest possible amount of fluid, just enough to colour the feathers, and induce the belief the passage was open.

DEATH OF SPANISH HENS. (*J. Price.*).—We believe “Mother” died of old age, as everything about her seemed worn out, and her food had ceased to nourish her for a long time. We never saw a fowl with decay so strongly marked upon her. Not so “Little Mother.” She had been in perfect health until lately, and now died only from the accident of having an imperfectly formed egg stopped in the ovary, causing great inflammation, of which she died. She was exceedingly fat, and, judging from it, we should think you might diminish the quantity of food given with advantage.

GAME COCK SHOT. (*Game Cock.*).—There is no doubt that you can recover damages from the person who shot your fowl, if you can prove who did the deed. The amount of the damages would be controlled by circumstances, such as notice of the bird being a previous trespasser, &c.

HEN WITH ENLARGED ABDOMEN. (*Pentadactylus.*).—Your hen with abdomen touching the ground, and laying soft eggs, is suffering from extreme fat, or from rupture. If she had not laid we should not hesitate to say, Kill her at once; but the egg, although a soft one, gives hope. You must continue giving her castor oil, and feed her very sparingly till the swelling has decreased and she lays perfect eggs. If a week will not accomplish it we can give you little hope. She should be at liberty, but not where there is food to be had.

CHICKENS DYING IN THE SHELL. (*W. C. G., Kendal.*).—This, happening when the eggs have been set upon for about a fortnight, and being a prevailing complaint, suggests that the cold easterly winds which have prevailed for some weeks have chilled the eggs. Sprinkling the eggs with tepid water, and keeping the nests more enclosed and warmer would prevent this mortality probably.

VARIOUS N. N..—You do not state whether the swelling of the Dorking pullet's crop is hard and solid, or whether apparently full of liquid. If the former, as she appears otherwise to be in health, we advise you to keep her till she has done laying, then kill her; but if the latter, as it is caused by internal fever, and consequent excessive drinking, it is only necessary to use castor oil freely as a purgative, and to allow only a little water four times per day. She must not have water always by her. *Black Bantams* should

be very small, have bright red combs, double ones are preferred, and perfectly white deaf ears. The cock should have long sickle-feathers or streamers in his tail; both cock and hens should be close-feathered, and they need not drop their wings like Sebrights. Under ordinary circumstances *chickens* may be put up to fatten at sixteen to eighteen weeks old, but in order to have a share of the present unusual demand, we would put them up at twelve and kill as soon as possible.

GREY AND WHITE GUINEA FOWLS.—*J. M. E.* requires a cock bird of this variety, and would be obliged by being informed where and at what price she can obtain one.

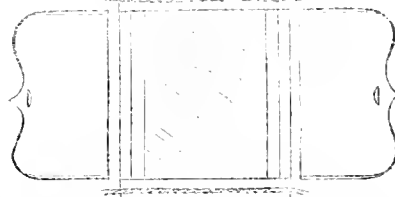
VARIOUS (A. B. C.).—Your Canary will be well after its moult. Do not give it either hemp, rape, or linseed. You will derive the information you need about the *Woollywing* Comb Bar from an advertisement in our last Number, and in our No. 652, Old Series.

HAM TO PRESERVE.—A *Constant Subscriber* will be very much obliged by information how to keep hams free from the maggots known as “*Jaupers.*” Many others of our readers will be equally glad of such information.

FEEDING YOUNG RABBITS. (*Henry Treestone.*).—To obtain long-eared Rabbits they should be kept at about 60° with ventilation. At three weeks old you will find they begin eating, and should have soft food, such as fine middlings scalded with hot water and mixed to a stiff mash, also a few grey peas soaked in water till they sprout, a handful about once a-day. The does with young ones suckling should have as much succulent vegetation as they can eat—such as dandelion, thistles, marshmallows, wild parley, and the refuse of any salads; but do not give too much at one time, or they waste it. Well-bred Rabbits seldom require a cap, but at times some of the best-bred will require them. Many fanciers think stitching better. There will appear a drawing of a cap, and from which you will be better able to make from than by a description.

CHINCHILLA RABBITS. (*J. C. E. C.*).—In reply to your queries respecting the Chinchilla Rabbit. A doe Rabbit is fit to breed at the age of six months. In their wild state they breed at five months. Their skins, to be of the greatest value, should be taken off in winter, and in cal-ur are supposed to be in perfection at seven to nine months. To answer your other question as to the weight is difficult. Some strains are much larger than others. We have two does, each of which weighs 9 lbs.; but from 5 lbs. to 7 lbs. is the general weight of full-grown specimens.

ATTACHING BARS AND FIXING WINDOWS IN STRAW HIVES. (*O. P.*).—The simplest and most economical mode I have tried of attaching bars to straw hives, either square or circular, is to have the two top-bands wrought double—that is, two outer bands being confined round the upper ones on which to rest and fix the bars. A further improvement I found to be forming a frame of four pieces five-eighths wood, equal in length to the external dimensions of the hive, and in breadth to the double bands, joined at the corners by cutting half the thickness from the upper sides of the end-pieces and under of the others. On this frame range the bars at the required distances, and retain in their places with short brass screws. For round hives the frame or ring is cut out of the solid, and must therefore, to prevent splitting, be at least 2 inches broad, and the thickness increased to an inch or two half-inch rings joined with the grain of the wood reversed (see page 72). Instead of placing over the bars a thick clumsy crown-board, which, besides impeding the ventilation, on its removal disturbs the whole colony, exposing the operator to an united attack, have the sides of the bars grooved, and the spaces between filled with slides working therein. The removal of a bar is easily effected without risk by placing over it and its slides a slip of glass. On the slides being drawn the apiarian satisfies himself as to the straightness of the comb. A few puffs of smoke both sides cause the bees to abandon it, and a spare bar or comb-frame takes its place. These frames are fastened to the hives with long screws introduced through the under side of outer bands. On their withdrawal the frame, with the entire contents of the hive, can be transferred to a fresh hive. To effect this, or for the transference of single bars of either honey or brood to strengthen weak colonies, the bee-keeper must foresee the great advantage of working a uniform size. Windows are easily introduced by cutting out a portion straw bands, and fitting tightly in the space a frame containing glass and a shutter. To prevent its starting, a thin card can be tacked on it above and below, and slipped round between the bands and tied at the sides. (See Cut.) Square hives possess the advantages of space for a large window and bars of equal length, but a rear interior to the circular or octagon form for concentrating the heat—a matter of considerable importance for the production of early brood.—A *RECKLESS BEE-KEEPER.*



ERECTUM.—At page 72 read the sentence, “They are fitted with eight bars, six of them 1½ inch wide. The remaining two 1½ are placed one at each end. These, every bee-keeper knows are devoted exclusively to honey, and are therefore better the broad size, instead of ‘*than*’ the broad size.”

LONDON MARKETS.—MAY 6. POULTRY.

With the exception of ducklings, we have no change to note. In their case, an exorbitant price has killed the demand. Judging from all previous years, we think we may say the present prices will not last much longer.

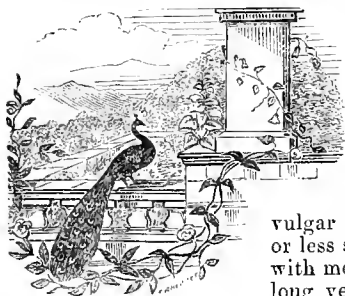
	Each—	s. d.	s. d.		Each—	s. d.	s. d.
Large Fowls.....	6	0	7 0	Guinea Fowls.....	4	0	4 6
Smaller Fowls.....	4	6	5 6	Pigeons.....	0	8	0 0
Chickens.....	3	6	4 0	Hares.....	0	0	0 0
Goosins.....	7	0	7 6	Rabbits.....	1	4	1 5
Ducklings.....	3	0	3 6	Wild ditto.....	0	8	0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	MAY 14—20, 1861.	WEATHER NEAR LONDON IN 1860.									
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun.	Day of Year.
14	Tu	Cypripedium acule.	29.831—29.762	deg. deg.								
15	W	Isopyrum thalictroid.	29.843—29.809	65—40	S.W.	.05	11 af 4	41 af 7	34 11	5	3 53	134
16	Th	Leontice thalictroid.	29.904—29.775	68—37	S.W.	.14	10 4	42 7	morn.	6	3 53	135
17	F	Arum tenuifolium.	29.609—29.522	62—45	S.W.	.09	8 4	44 7	20 0	7	3 52	136
18	S	Arenaria verna.	29.440—29.336	62—38	S.W.	.25	7 4	45 7	42 0	7	3 51	137
19	SUN	Whit SUNDAY.	29.947—29.633	66—39	S.	.14	6 4	47 7	2 1	9	3 49	138
20	M	Whit MONDAY.	29.947—29.633	70—38	S.W.	—	4 4	48 7	20 1	10	3 47	139
			30.212—30.075	71—39	N.E.	—	3 4	50 7	37 1	11	3 44	140

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 64.8° and 42° respectively. The greatest heat, 86°, occurred on the 17th in 1833; and the lowest cold, 25°, on the 15th in 1859. During the period 145 days were fine, and on 93 rain fell.

“LET THE WINE BE RARE, THOUGH SCANT IN QUANTITY.”



N the *Cornhill Magazine* for this month there is a piece of poetry entitled ‘Sold;’ and I might perhaps have headed my paper thus, for it has to do with a process to which—using that word in

vulgar parlance—I have more or less submitted to in common with most amateurs for many a long year. For I wish now to speak of a series of annual at-

tacks, in which raisers of and sellers of flowers are the victimisers, and the amateur florists the victims; and as I see symptoms that the latter much-enduring race are at last “kicking in the traces,” I may, I hope, without offending any one, say frankly what I believe to be the general feeling of florists on the points to which I allude, and suggest how much better policy it would be to adopt a different course.

Any one who takes the trouble to read the advertisements in any of the leading floricultural journals will find that, every autumn, there come out a series of flaming announcements of some of the most wonderful novelties that ever were seen; and as spring catalogues begin to bud, a fresh crop of these startling introductions makes its appearance. Pelargoniums, Cinerarias, Fuchsias, Dahlias, Pinks, Hollyhocks, Verbenas, Roses, Chrysanthemums, annuals, and other flowers of a similar class, are the subjects of these high-sounding praises. We read the descriptions—nothing can be more precise; and amateurs, according to their means, invest their floricultural capital in them. They do not come out by twos or threes—no! there must be eight or nine Fuchsias, a dozen Verbenas, and so on. Flowers are there which have passed through the ordeal of a close scrutiny, and others that have never been through any ordeal at all, save the affectionate not-too-severe criticisms of their tender parent. Well, they are taken home. Oh, how carefully watched and tended! As blooming time comes on great is the interest they excite. Will they equal what is said of them? One begins to open—well, it don’t look much. We see, however, it cost its 5s., or 10s., or 15s., or even a guinea; so we are unwilling to acknowledge its deficiencies and to confess to our discomfiture:—it is only a first bloom, the next may be better. Alas! it is worse: and out of the dozen that we have received, perhaps three or four may be retained, but no more, and we inwardly confess ourselves—shall I say it?—“sold.”

I have now been a florist for twenty-five years; and if I were to put together all the series of hot and cold fits to which I have been subjected, I am sure it would equal Dr. Livingstone and his African fevers. Such a

state of things is not creditable or pleasant. But I believe that the fault does not lie altogether on one side. There is an insatiable curiosity on the part of growers for something new, and it is hardly in human nature to resist the temptation of satisfying it; while there is the almost pardonable weakness in raisers of believing that their own flowers must be the best. Their eye has been accustomed to a peculiar strain, and they do not think anything out of that can be equal to theirs; and hence the offence is committed.

Is there no remedy? It seems as if the public begins to think that there is, and that they are determined to try it. The demands that a flower should satisfy the requirements of the Floral Committee are becoming more urgent; and growers and raisers of flowers will, I hope, soon see the advisability of submitting their productions to its decision. It is by no means sparing in its certificates and labels where there is any merit; and I think, that if a flower is really worth sending out, it will receive either the one or the other from that Committee. It is so constituted, too, that, unless on some rare occasion, justice is pretty sure of being done. Let, then, the amateur hesitate before he purchases anything that has not obtained its sanction.

It may be said to this that many raisers live at a great distance from London, and that others would hardly be able to risk the expense of sending a bloom of a florist’s flower so far. But surely the communication throughout the country is so cheap and rapid, that when we find one grower sending up from Edinburgh a box of Pansies to the Botanic Society’s Show, this will hardly be a sufficient excuse.

By-the-by, I see the Scottish Pansy Society has very wisely adopted a sort of Floral Committee of its own, to which all flowers are to be subjected, and I believe nothing is to be sent out that has not passed that ordeal; and as Scotland is now one of our chief places of supply for novelties, this step cannot but be desirable for both the raiser and the grower. I say the raiser, for I happen to know in one case that the price of a set of flowers has this year won just half as much again to the firm which is sending them out, on the ground that their having obtained first-class certificates at the Floral Committee had enhanced their value: and desirable for the growers, for it insures to them that their money will not be thrown away.

There is, however, a practice of freighting the vessel which contains three or four good varieties with as many more that are utterly worthless, the good qualities of the former being regarded as something that is to make up for the defects of the latter. This is a positive injury to the amateur, who is cramped, perhaps, for room, and who gives up some of that for things he will have afterwards to throw away. I see that one of the leading London firms is advertising a great reduction in the price of novelties—almost, in many instances, to one-half. I believe they would have acted much more wisely if they had kept to the former price and reduced the number to be sent out.

As the taste for horticulture is spreading, we may expect that those who devote themselves to raising seedlings will increase in number: and consequently the evil, if not checked, will increase. We should think it very hard to be obliged to put up with two or three bad eggs because the dozen had to be made up; and why should we put up with a like absurdity in flowers? It all arises from greediness. The grower is greedy, for he wants to have ever so many new things each year: the sender-out is greedy, for it is very tempting to be able to get double or treble the price for a plant because it is new.

I say nothing of the raiser, because he oftentimes knows but little about the matter, and is only the unconscious victim in the hands of the person who takes these little matters off his hands. We must, then, agitate for a reform. Great changes have taken place. The time for letting out *Pelargoniums* at five guineas has long since gone by. Even the guinea and a half has fallen to a guinea. But, as I have said, the reform we want is not so much in the price of the flowers as in their number; and the nurseryman who will set his face against the present system will indeed be a public benefactor.—D., *Deal*.

PHENOMENA IN THE CROSS-BREEDING OF PLANTS.

[HAVING received the following letter from Mr. Darwin we forwarded it to Mr. Beaton, and now publish it with his reply.]

"Will Mr. Beaton, who has made such a multitude of most interesting observations on the propagation of plants, have the kindness to state whether varieties of the same species of Composite plants frequently cross each other by insect agency or other means? For instance, will any of the *Cinerarias*, if kept apart from other varieties, breed true? but if standing near other varieties, will they generally, or almost certainly, produce a much greater diversity of coloured seedlings?"

"I saw an allusion by Mr. Beaton to this subject in THE COTTAGE GARDENER of last year with respect to *Zinnias*; and from this allusion I infer that *Zinnia* sports much when kept separate.

"As I am begging for information on the natural crossing of plants, I will likewise venture to inquire whether the great raisers of *Hollyhocks* find it necessary to keep each variety far separate from the others for raising seed. The late famous horticulturist, the Hon. and Rev. W. Herbert, when I visited him at Spofforth many years ago, remarked that he was much surprised (considering the structure of the flower and the relative periods of maturity of the pollen and stigma) how true some sorts of *Hollyhocks* bred, even when growing close to other varieties. I have found this to be the case with some of the varieties, and cannot understand how it is possible. Mr. Beaton might, if he pleased, write an article, very valuable to physiological botanists and of some practical utility, on the natural crossing of varieties. He might indicate in which genera crossing most commonly occurred, and in which it seldom or never occurred. For instance, I have observed Sweet Peas during several years and believe that they never cross; and it is not easy to make an artificial cross, though I succeeded at last, but got no good in a horticultural point of view.—CHARLES DARWIN, *Durp, Bromley, Kent*."

I am not aware that any two species of Composite plants under cultivation have ever been crossed by man, or through the agency of insects. Mr. Penny, who first broke down *Cineraria cruenta* in the Messrs. Young's nursery at Epsom, said he got it to cross with another species, I think, from Tenerife. It is more in accordance with the experience of cross-breeders, however, that superior cultivation induced the disposition to vary, as in the *Dahlia*. The Swan River Daisy, *Brachycome iberidifolia*, is the last instance we have of this in the garden; while *Zinnia* is the last variable Composite plant that has been turned into double flowers, so called. This last change is said to have been effected in India; and if it is really so, the effect may be ascribed to climate more than to high cultivation. We know the Port Natal *Gladiolus* (*natalensis* or *pittacinus*) could not be crossed here, or on the Continent, with any of the old Cape species or their seedlings; but in Australia, at Sydney, the cross was easily effected—*Gandavensis* being the first seedling of that cross; but as soon as that cross got into the hands of European cultivators they experienced no more difficulty in pushing on their crosses in the strain of *natalensis*. These are three recent instances of the undoubted influence of cultivation and climate over genuine wild species. For the first seven or eight years of high cultivation the Swan River Daisy kept to its original colours—blue and white, then varied into lilac and purple and minor shades. When a flower or species thus varies from the effects of cultivation or climate, the variation is also variable in degree. Some of the varieties produce themselves quite true from seed from the first; others,

on the contrary, take some years before the colour or habit is "fixed," as gardeners say when a variable plant comes true from seeds after sporting for some years; and some never get fixed, or have not done so yet, and *Zinnia* is an instance of it. In all these instances some people attribute the changes to cross-fertilisation; they have been crossing their flowers, and they have seen results, and account for them that way, deceiving themselves. But those who have studied and experimented on the effects of cross-breeding, as against the results of the effects of climate and cultivation, have long since arrived at the conclusion that crossing has no power on fixing any two plants which naturally sport—that is to say, on fixing a seedling from their union combining so much of the qualities of each of the parents as is generally the case when two permanent kinds or species, which always reproduce themselves or their like, are united. That conclusion strikes at the root of the fallacy which obtains in respect to the best means of improving all our domestic fruits; and yet crossing is an element of great value in improving flowers and fruit, which seems a contradiction, but is explained thus:—Some seedlings from plants that have been crossed for a generation come quite true from seeds, some half true, and some on which no reliance whatever can be placed, or, in our language, they always sport from seed. On those which this sport-crossing has no effect—such, however, as come half true and half sport-crossing—there is a chance of an intermediate condition, and those merest varieties which come true from seeds crossing is just as effectual with them as with two genuine wild species. One would think, therefore, there were no natural limits or difference between a species and a permanent variety—that is, one which comes true from seed, like the large-flowering variety of the *Mignonette*. In practice there is no landmark whatever between such a variety and a wild species. The garden *Cinerarias* are sporting plants as much as the *Dahlia*, yet among a thousand seedlings of each, one may turn up which will come half true from seeds, and when one finds such a seedling in any of the sporting families of common plants he keeps it for a breeder, even if it were the worst-looking in a large batch of seedlings. The way with *Cinerarias* more than with most plants is this—by a careful selection of kinds under high cultivation one gets a superior strain, as we say, or superior flowers, which, although they will not come true from seed, will produce more good seedlings, or less bad ones, than an inferior strain: therefore, if a good flower or good strain of *Cineraria* is exposed to the pollen or influence of a bad strain, the good breed is immediately deteriorated in the sporting offspring. I am not aware that any of the garden *Cinerarias* come true from seeds, or if any of them could now be crossed with the nearest wild species. The only Composite flower on which I ever spent time is *Dahlia scapigera*, the pretty little lilac dwarf *Dahlia* with small shining foliage, and I think I can venture to assert that in our climate it is impossible to cross it with any of the garden *Dahlias*. It is just the same among *Primulas*: notwithstanding the freedom with which *Auriculas* and *Polyanthuses* will sport among themselves, you cannot drive a seedling from all their races by the pollen of their nearest kindreds. When *Primula Palinuri* and *sinensis*, which were introduced the same year (1816) came into general cultivation, I was initiated into the mystery of crossing flowers, and these two were of the number which raised the hopes of the cross-breeders, particularly *Palinuri*, which, to a common observer, is nothing beyond a huge *Auricula*; but none of the wild species of *Primula* would touch each other or the garden varieties. Then you see no end of sport seedlings in the *Dahlia* and in the *Primula*, in two distinct species of *Primula* and two botanical species of *Dahlia*; and yet the rest of their families obstinately hold aloof from each other, and from the sports of their respective kinds.

The old *Hollyhocks*, or some of them, were fixed varieties; but whether they were so fixed from the first, or induced to fix by a long course of culture by propagation of the roots we do not know, but the fact is well known that some of the old kinds would come true from seeds. A long course of one uniform culture renders some plants barren altogether, as *Crocuses*, and a long period of years intervenes between the birth of some seedlings and their coming to the age of puberty—to the age of producing seeds, although they may have flowered from the second or third year from the seed. *Ribes sanguineum* flowered six or seven years before it began to seed; and Dr. Herbert records an instance in which a certain seedling bulb flowered fourteen years before it produced pollen or would seed.

"The relative periods of maturity of the pollen and stigma,"

seems to have been a wise law from the beginning for the preservation of the kinds of plants in their generations, for there is not a flower in a thousand that is fertilised by its own immediate pollen. The pollen is in advance of the stigma in the great mass of flowers, and the pollen from another flower on the same or neighbouring stalk is the fertiliser. And here another wise law is in operation: When the stigma is ripe it is exposed to the influence of the pollen of all the plants of its own kind which may be growing near it; and the law is, that the pollen of the flower, or of the plant which is the strongest or best developed, takes the lead in fertilising the stigma, and at the same time is able to neutralise any effects that may have been produced by an inferior pollen, or pollen from a weaker flower or sickly or stunted plant—a thing which can be proved any day in the summer by dusting the stigma with its own and sundry pollen, when one kind of pollen only will take effect. And that proves two things in addition to the proof that the best pollen takes the lead—proves superfecundation to be impossible, and also proves that the ideas of physiologists are not according to Nature as to the progress of the pollen to the ovary. They say the pollen passes through tubes of extreme tenuity to the oviducts. If that were so, and more than one stigma supplied the necessary passage, more than one kind of pollen might find access to the oviducts, and more kinds than enough would fertilise the embryo seeds, and superfecundation would necessarily result.

In the instance mentioned by Mr. Darwin of Sweet Peas never crossing, they belong to a class of flowers every one of which must, of necessity, be fertilised by its own pollen in the great majority of instances. The carina, or keel, or lower petal in pea-shaped flowers is, in reality, two petals joined at the edges. The joining is the keel, the ends of these two petals lap over or fold into each other, forming the imaginary bow of the boat; the stamens and the pistil are compressed within the folds forming the bow, and fertilisation is effected in the dark, and the stigma is perfectly safe from the intrusion of foreign pollen: therefore, no garden Pea can be naturally crossed more than a Sweet Pea, unless, indeed, a strong bee with other pollen on his legs has been struggling to get at the nectar in the stern of the boat. Some of the varieties of the garden Pea may be crosses resulting from a struggle of that kind, but the great majority of them are the results of the sporting tendencies of the plant itself. This is the true cryptogama of Nature, of which, however, there are many more perfect instances. The great bulk of the order of Bellworts, or Campanulas, are real cryptogams, their fertilisation is effected in the dark before the flower expands; but the Wheat might be said to be the most complete cryptogam of all the common plants. No kind of Wheat has ever been naturally crossed and never can be. When the Royal Agricultural Society talk about the Wheat being in blossom, they are just one month behind Nature. But what they and the bulk of the country people take for the flowering of the Wheat, is one of the most beautiful contrivances in Nature as means to an end, a departure from the law of Nature, as it were, to preserve food for man. The Wheat is in full flower, and the seed is fertilised while the ear is yet in the folds of the sheath before the Wheat is in ear. At that period the anthers might be said to be sessile, or to have hardly any length of stamens under them; but as soon as the pollen is shed, the husk of the anther might rot in such close confinement and endanger the safety of the staff of life now having just received vitality. To prevent famine for lack of Wheat, however, Nature alters her common process in this matter. As soon as the anther is emptied of the pollen the stamen begins to grow and to push up the husk of the anther away from the embryo seed; and by the time the ear is seen the husk is well high out of the scales which enclose the seed, but stops not there nor till the husk is dangling from a white thread far off from the entrance to the seed-case, and when all dangers are thus provided against, the farmer congratulates himself if the weather is propitious for his Wheat in blossom!

I do not know an instance "of the natural crossing of varieties." My own experience of variable plants was given last week, and I do not exactly comprehend what is meant by natural varieties, for all the so-called varieties in cultivation have been artificially obtained either by a change of cultivation, or by crossing with pollen such kinds or species as would sport from seeds under cultivation. These kinds I call variable plants, their own progeny being constantly variable in aspect, and just as variable when the pollen of another flower is applied to them. It is a difficult thing for a gardener to see or comprehend the meaning of what botanists call varieties, or natural varieties of

plants, because there is no limit, or sign, or any other indication in their outward aspect to distinguish them from the oldest species on record, and there is nothing in the botanical structure of even a variable seedling to distinguish it from a genuine species. Professor Henslow proved that point long since in his comparative anatomy of a cross-bred Foxglove, or some such plant. I do not know of one plant that is a cross between any two plants in a wild state. I do not know that any one has obtained a true cross in any of the pea-flower plants—papilionaceous plants, nor yet any reliable cross among all plants of the Composite order. I know one thing on which many, if not most gardeners, put a great stress or value in knowing—that is, the conditions under which plants that are fit subjects for garden decoration are found in their natural habitats; but that knowledge is of little practical value, or may prove to be a hindrance to the proper cultivation of particular plants for some time, and yet might be the means of suggesting why and how plants may be, or have been, induced to cross in a wild state, or have sported into variations without crossing. That one thing needful is proved to be of so little value by the well-known fact that very many garden plants, or their immediate ancestors, did not, and do not at the present day, occupy those regions in the wilderness which were best suited to their natures. Their positions or habitats, as we say, are more often the result of necessity, not of choice. A plant that would thrive and be luxurious on the sea coast, on the plains, or in valleys in beds of alluvium, or in the shelter of high ridges, or precipitous rocks, can find no foot room in such luxury from the natural competition of more powerful neighbours, as was the case not many ages since among ourselves in the midst of civilised life; and from this competition the weaker plants must always go where they can vegetate and live a quiet life without rank or luxury—in the highways and byways of the savage wilderness, and in time they become the alpine and sub-alpine species of that part of the world from sheer necessity. They may even become sterile from a long course of the starving principle. But now recover one of them from impending fate, give it to a florist or a fancy gardener who is above the vulgar prejudice, in his belief that all plants in a wild state must, of necessity, occupy the places best suited for their natures, and he will soon tell a different version of how the matter really stands, and might have stood in the wilds, if the plant could get admission to those parts for which its constitution was formed to enjoy. The plant is found to be a luxuriant grower, not at all like a mountain plant, or a rock plant, or ridge or the bare-places-of-the-earth-kind-of-looking plant one might expect from the description of its habitat. After a round of cultivation has brought it to that point from which it fell, from the competition in foreign parts, it begins to seed; and if it, or any of its seedlings sport for joy, why, a new race is born into the world, as has been the case at every revolution of the order of things since the world began to be clothed as it is now; or if it comes true from seeds, another flower of the same kind which have been already civilised, as it were, may cross with it or by it, and a generation of gentry is forthwith on the stage of the florists, or of that of the competition tent. But suppose the wild plant had found a place suited to its nature in the struggle with stronger plants, and that it inherited the property of sporting or of crossing with another, may we not believe that a new plant, or new race of plants might thus result by such natural means, as by the artificial process of the home cultivator? That is as far as the experience of gardeners and cross-breeders can account for natural crossing in a wild state.

The artificial crossing of pea-shaped flowers is easy enough. All that the operator has to do is to split open the bottom part of the keel-petal or united petals with the point of a pin: that relieves the stamens, which may then be extracted, and the pistil is free also to receive foreign pollen. Mr. Knight made an experiment for getting early Potatoes to seed by planting them on a ridge, and when the plants were ready to bloom he washed away the soil of the ridge to prevent them making young tubers, and so force the whole strength of the plants or roots into the stems and foliage to see if that would force them to seed. Another form of that experiment is applicable to all bulbs and tubers which form roots on the flowering-stems, as the Japan Lilies and others do. Pot such bulbs or tubers with the neck of the bulbs just at the surface, and when the stem is an inch or two put an empty pot over it, introducing the stem through the hole at the bottom of the pot, then earth up the stem, and when it roots and fills the upper pot separate from the bulbs, then cross it.

D. BEATON.

VINES REFUSING TO BREAK.

I HAVE in my late house of Vines three Vines that I cannot get to break, except at the bottom of each stem. When I entered on my present situation in July they had been under the care of a labourer, and had been scoured, and bore little fruit. When the pruning season arrived, which was on the spurring system, I cleaned all the old bark off, and washed them in a mixture of soft soap, sulphur, and cowdung—a mixture always used at Trentham for all the fruit trees. My early house, which I have treated the same, has a noble crop of fruit on. I may also add that the roots are outside, and have been covered with horse-litter to the depth of 14 inches all the winter. When I took the litter off, about the middle of the month, I found the border wet, but the roots are good.—H. H., *Lancashire*.

[If the tops of your Vines will not break now we should judge that they must be dead, and we should judge that they have been killed by exposing them to frost after peeling their bark off, or that in washing them you used the paint in too warm a state. You give us too few data from which to judge; but as they are breaking from the bottom, either cause would produce the result. Are there no marks of mice or rats gnawing the stems above the place whence the young shoots are now coming? If the upper portions of the rods are dead, you cannot do better than replace them by some of the young shoots from their base.]

A GLIMPSE OF WOODHALL.

(Concluded from page 79.)

THE kitchen garden is large and beautifully situated, well sheltered, and the walls extra well supplied with fine fruitful trees. Beyond the walls shrubs and trees had suffered rather more than in this exposed place; but inside there was a great difference. Apricots seemed scarcely touched, and well stored with prominent fruit-buds, whilst ours had shrivelled up or dropped, though the wood-buds remained. Peaches, too, on a wall were a picture, for its fine trees seemed little injured; and though on cutting some shoots the heart was rather brown, Mr. Beale thought they would manage to grow and bear their crop. A Pear-wall, the shoots trained horizontally, some years before had the spurs thinned and gradually removed, and young wood tied downwards over the main branches, and these were bristling with flower-buds, though Pear-blossom is extra thin in many places this season.

I noticed an underground spacious chamber for all root crops where there is no danger of frost entering. A commodious stair leads to the entrance, but light is obtained and the roots put in through a trap-door on the ground level. Potatoes, Carrots, Beets, &c., were in excellent condition. Mr. Beale praised very highly the Pine Apple Beet for its rich colour and extra saccharine properties. The Mushroom-house was on the old principle of Oldhere, with wooden shelves, and the lower beds next the ground were seldom used, as the shelf-beds were more thoroughly under command, and plenty were obtained from them by successions. Some bushels might have been gathered that day. I noticed no peculiarity except that the surface of the beds was rather loose, but Mr. Beale stated they were not so firm as he generally had them.

The whole forcing department was next to perfection. A long pit of young Pines heated entirely by fermenting material within, such as tan, and dung linings without, looked very well, having been carried through the very severe weather without suffering in the least. The plants inside were all nice and dry, not wrapped in moisture and cold vapour, as they frequently are in pits heated by dung at that season. This was much owing to the closeness of the brick walls. They had originally been pigeon-holed, but Mr. Beale had the holes filled up, and now with the dung banked up to the top of the walls, the enclosed atmosphere was dried as well as heated, and air could be given more freely in favourable weather. The fact bore out what has several times been stated about heating by dung.

A little above this is a long range of span-roofed houses or pits in three divisions, but which can be all heated at once, or one or two only, beginning with the end next the boiler. If not all new it has been remodelled by Mr. Beale. The side walls are from 3 feet to 4 feet, with ventilators in them for side air. In one side the sloping roof each alternate light is made to slide; and as the lights are heavy, a stout iron pin with a chain attached

goes through them into the wall-plate to keep them secure when close or open. A few inches at top are found sufficient for all early crops. The height to the ridge is 8 feet, width of house about 11 feet. A pathway down the middle divides it into two beds. There are two pipes on each side for top heat, one next the outside wall, and one above the wall of the path, both on the same level; and one running back under the bed, with a little fermenting material, gives enough of bottom heat for cucumbers, melons, &c. A peculiarity is a stout wooden shelf immediately above the pipes next the passage, and which in such a position, independently of the non-conducting properties of wood, becomes nicely warm and furnishes a good platform for a few ornamental plants. On the 8th of February the boards were mostly filled with cutting-pots of Verbenas, &c., doing nicely. Cucumbers were put out in some of the beds, and there were some fine Orange plants coming into bloom for the conservatory.

Higher up still on the sloping ground were a range of Pine-houses. These had originally been very wide pits, covered with huge sashes some 16 feet or more in length—a fine benefit to move up and down for air, and to take off when anything required to be done! The sashes are retained, but the back wall has been removed, except what was wanted for a curb for the Pine-pit, and the house has been widened so as to permit of a wide pathway behind, covered with a short-hipped glass roof, by which air is easily given. The middle division has been converted into a stove for plants, with massive slate platforms, as more Pines were grown than were wanted. The Pine plants were strong and stubby; some swelling, some showing, and many presenting that look that tells the gardener that they would yield their fruit in regular succession. The smooth Cayenne seemed a great favourite, and the plants were very fine. I find several gardeners are becoming greatly in love with this kind. A good judge told me lately that the fruit had an aroma of its own. It is certainly more pleasant to work among than the hard prickly gentry.

On the brow of the slope stands a splendid range of vineries, some 16 feet or 18 feet wide, and lofty in proportion, the roof coming low down in front. These houses are heavy, with immense sashes in the old-fashioned way; but the Vines were pictures. The later vineries had the floors covered with bedding plants. One house or more was filled with Scarlet Geraniums in small pots, soon to have a shift into a larger. Each pot had a large cutting put into it in autumn—a good plan where such room can be afforded. When Mr. Beale has the new flower garden in full working order, most likely he will have to economise room, too, in winter.

The early vinery was a fine sight. The bunches were within a few days of flowering on the 8th of February. The Vines had been spur-pruned, and I did not notice a shoot without its bunch. The crop, therefore, would not only be fine, but regular and equal, and the Vines were in the best possible condition. As far as I recollect, the Vines are planted inside, but the roots go out into a wide border, with a fine slope to the south. How then was the border treated? Much in the way recommended by Mr. Bailey in a late volume. Early in autumn some rich dung is placed on the border, that the virtue may be washed in by the late summer and autumn rains. Early in autumn—at least before the ground loses heat by radiation—a good layer of fern is thrown over the border. Later some long litter is added, and hurdles thatched with straw are placed next the front wall of the house, and in front of them the border is rough-thatched, so that much of the rains of winter is thrown off. The mode of covering will not throw much heat into the soil, but it prevents the heat accumulated in the summer escaping at all freely, so that the roots will be in a comfortable position, and ready to meet the demands of the expanding leaves and swelling bunches. One peculiarity of Mr. Beale's system, and one worthy of being noted, is—in his early house *he never moves the covering until the Grapes are coloured*, if not mostly cut. Then the border gets its fresh dressing, as alluded to above.

Another peculiarity (or nearly so, for I noted the same thing in a short description of the Poles, the residence of Robert Hanbury, Esq.), is—that the heating-pipes are on the same level. In these vineries there are five four-inch pipes somewhat regularly distributed over the width of the floor from the pathway to the outside front wall. That is the number in this fine early vinery at any rate. Four of these pipes are flows, and one is a return. So far as the hand could judge, all were as near the same temperature as possible. When less heat is wanted

than such a number of pipes would give off, the application of a valve shuts off the circulation from two pipes, and confines it to two flows and one return. The pipes from the part where they communicate with the boiler, or main flow, rise slightly, perhaps 2 inches or 3 inches to the farther end, and an open air-pipe there prevents all accumulation of air. The boiler is supplied from a cistern near it in the back shed. The attendant on the fires has to see that the cistern is always supplied with water. At the highest end of the pipes a very small tap is fixed, by turning of which as he goes through the houses, Mr. Beale may know in an instant if the boiler and pipes are properly supplied, as, if there is water in the cistern above the boiler, the water will issue from the small tap. A very handy check is thus always ready. Mr. Beale has done almost the whole of the heating himself; and after the usual packing at the heads of the joints, he fills them entirely with Portland cement, and so far as sound joints can tell, it would seem that nothing could answer better.

A very great advantage connected with this garden is, that from a reservoir of water on an elevated mound, and by means of pipes along the walks, and strong plug-taps at suitable intervals, and a fair amount of hose, all the wall trees can be washed, and the growing crops watered, with but little labour. The water-barrow must, therefore, enjoy something like a snug sinecure.

Mr. Beale's comfortable house—the main living-rooms being half a story above ground—stands at the north side of the garden, a small flower garden in front separating it from these vineries and their range of back sheds. In these sheds are the rooms for the young men—the floor somewhat sunk below the ground level outside—almost the only thing at Woodhall suggesting an improvement, as independently of the sunk floor, hardly a direct beam of sun can enter windows facing the north—an objectionable feature, whatever other advantages these rooms may and do possess. In these rooms Sir Joseph Paxton lived, and there, too, is the very bed on which he slept when a young man, and wielding the shovel and poker in attending to the furnaces of these houses.

Very simple things often show us what changeable, inconsistent creatures we are. I had the pleasure in crossing the park to the kitchen garden with Mr. Beale to meet the youthful proprietor of this fine demesne, and could not help wishing that son and sons to come might be as distinguished as their sires for those sterling qualities and unobtrusive benevolence that have made the Abel Smiths an institution of the county. Anon I began to wish, that when the period came when these noble commoners should be enrolled among the peers of England, the popular well-known name might still be retained, as in the case of Lord Herbert of Lea, and that if lords there were to be, it might be Lord Abel Smith of Woodhall. Ere long we even began to doubt whether such added dignity might be the best of all compliments, and if we could not sing we could have chorused the independent spirit-breathing lyric of Burns—"A man's a man for a' that."

"The rank is but the guinea's stamp,
The man's the gowd for a' that;
A prince can make a belted knight,
A marquis, duke, and a' that;
But an honest man's aboon his might,
Guid faith, he mauna fu' that."

But, heigho, the sight of that humble bed on which the great gardener had rested his weary limbs and his working brain, associated with what he has now become, led us at once, if not to worship rank and title, at least to feel grateful to the Sovereign Lady, who, in knighting the gardener conferred not only an honour upon him, but on every one of us the humblest in the blue-aproned fraternity; adding, too, another proof, if proof were necessary, that in this favoured land of ours real genius combined with true merit will ultimately meet with due acknowledgment; and that even the humblest in station may aspire, if such be the bent of their ambition, to be enrolled in the ranks of the aristocracy of title, as well as the aristocracy of intellect, or the nobler aristocracy still of true greatness, because associated and identified with practical goodness.

That bed, too, might well furnish practical lessons to many of the young gardeners of the day. Much has lately appeared in gardening serials respecting their interests, their education, the means to be adopted for securing ultimate success—much that, if prudently followed, could not fail to elevate, improve, and make better men as well as better gardeners—much, however, having a decided tendency to give them false notions of their

social position—much to puff up with consequence, as if already they had the right to choose what they would do, and more fitted to direct and to order than cheerfully and with alacrity to obey—much leading them to found baseless expectations of what head gardeners and other friends could, would, or should do for them, instead of depending on their own self-denial, their own self-culture, inflexible integrity, and unremitting, unswerving attention to duty. From all I have heard of Sir Joseph Paxton when at Woodhall and elsewhere, no doubt can remain that to such self-culture, self-denial, unwearied industry, and unremitting attention to carry out the directions and instructions of his superiors as a great principle of duty, he was indebted for securing the approval of those for whom he laboured, and ultimately became fitted to be chosen as the gardener, and, what is more important, as disproving all the fallacies about mere good luck—fitted to continue the gardener of the Palace of the Peak, and to render its gardening events in horticultural history; fitted to be the designer of the splendid Crystal Palace; fitted to be listened to with marked attention as a senator in the legislative halls of the nation; fitted, perhaps, most of all to sustain worthily the greatness achieved—greatness, I believe, even less seen in the social distinction obtained, as in the simple well-known fact, that he has never turned an averted eye from an old acquaintance however humble, nor shown any diminished regard for all that concerns the best interests of his old brethren of the spade and the hoe. Would humble men aspire to obtain and sustain, even a very comparative respectability in position, similar means must be used, a similar pathway must be trodden. All other dependencies will ultimately end in disappointment. R. FISKE.

COMMON PLANTS.

THE Dandelion-like plant, *Doronicum austriacum*, has flowered well with me this spring; but the situation where it flowers and thrives best is a rich alluvial loam. Some plants, nearly twenty years old, growing on the bank of a river flower well, and grow to a large size from the river to the top of a hill, 600 feet above the level of the sea. The plants in the gardens gradually grow less in size, seldom flower well, and rarely live more than two years; yet in sheltered corners some good plants may be found which flower well.

Those readers of THE JOURNAL OF HORTICULTURE AND COTTAGE GARDENER who find it difficult to grow *Saxifraga oppositifolia* will find it more easy to grow *Thymus serpyllum hirsutum*—a variety of our common wild Thyme, and like the *Saxifraga* "a bonny tufty kind o' plant wi' a wee purple kind o' flower." It is a plant that is easy to grow in the rockery and mixed border. This winter, in places where the *Saxifraga oppositifolia* has died away, the *Thymus* has survived, and kept its downy leaf very well. I have a plant, one of the healthiest I ever had, and it has had no care bestowed upon it; the situation in which it is grown is cold and bleak, yet it promises to flower abundantly. The flowers of this *Thymus* are not so large or as good a colour as *S. oppositifolia*, still it is a plant worthy of a place in the rockery and mixed border.

I am well pleased to learn that the Editors of THE JOURNAL OF HORTICULTURE AND COTTAGE GARDENER are writing a work on the wild flowers of Great Britain. Such a work written in a popular form has long been needed, and may be of use to the lovers of our English Flora. If not already contemplated, let me suggest the propriety of their writing an English index—from the want of an index of local names many of our country Floras have been thrown aside and forgotten. That the present work may have an extensive sale and stir up a desire to be better acquainted with our wild flowers is the sincere desire of—RUSTIC ROBIN.

THE ILLUSTRATED BOUQUET.—In the last Number of the "Illustrated Bouquet" there is a magnificent double plate of *Alocasia metallica*, the most beautiful of all the fine-leaved plants in cultivation. Another fine plate of two varieties of *Lilium speciosum*, or of those commonly called Japan Lilies and *Lilium lancifolium*, under which the whole family of Lilies is described in sections, and their proper treatment explained; to which is added the monograph of all the ornamental bulbous and tuberous-rooted plants, which we have already noticed. The reason which induces us to notice this part of the "Illustrated Bouquet" more particularly at this time, however, is the coloured double plate, which exhibits at one bird's eye view the whole of the

glass structures, walks, views, and furniture, so to speak, of the establishment of Messrs. E. G. Henderson & Son's, in which may now be seen the finest collection of spring-flowering bulbs in full bloom—a circumstance which, we believe, induced Her Majesty and suite to take several drives down the Wellington Road this time last year.

REPORT ON THE GARDEN PEAS,

GROWN AT CHISWICK DURING 1860.

By ROBERT HOGG, LL.D., F.R.H.S., *Secretary to the Fruit Committee.*

(Continued from page 63.)

37. Burbidge's Eclipse ... NOBLE, COOPER, & BOLTON.

SYN: *Stubbs' Dwarf*.

The plant is a dwarf but robust grower, from 18 inches to 2 feet high. The foliage is dark green, slightly blotched. The stem is always simple, and produces from ten to twelve pods, which are generally in pairs, rarely single. They contain from five to six Peas, which are of good size, and closely packed. The ripe seed is large, uneven, oval, and of a blue colour.

Sown February 19th; bloomed June 13th; slatted June 25th; and fit for use July 13th.

This is the dwarfest of all the blue Peas, and is an excellent bearer.

38. Flack's Imperial NOBLE, COOPER, & BOLTON.

SYN: *Flack's Victory*; *Flack's Victoria*.

This variety, introduced about ten or twelve years ago as an improvement on *Bedman's Imperial*, appears now to represent the varieties formerly known as *Blue Imperial*, and *Bedman's Imperial*, and deservedly so, for it is the only one of the name really worth growing when true, and it requires careful selection to keep it so, from its tendency to degenerate into *Blue Prussian*. The plant is of a robust habit of growth, with a stem which is always branching, and generally about 3 feet high, producing dark green blotched foliage. The pods are from twelve to eighteen on a plant, generally in pairs, but frequently single, and contain from six to eight very large Peas, which are of an ovate shape, about half an inch long and seven-twentieths broad. The ripe seed is large, irregularly oval, and dark blue.

Sown February 19th; bloomed June 13th; slatted June 26th; and fit for use July 11th.

39. Banksian Marrow... FRASER, RICHARDSON, & GOAD.

This is evidently a form of the *Scimitar*, but with a less curved pod, and partaking a good deal of the character of an *Imperial*. The plant grows to the same height as both of these, and the pods come into use also at the same time. Though a good sort it is not materially distinct, and does not possess any superior merit.

40. Blue Scimitar NOBLE, COOPER, & BOLTON.

SYN: *Blue Sabre*; *Scimitar*.

The plant is a strong, robust grower 2½ feet to 3 feet high, generally with a simple stem, but sometimes branching, and having dark green blotched foliage. The stem bears from twelve to eighteen pods, which are also of a dark green colour, and very much curved and flattened. They are produced generally in pairs, and contain on an average nine to ten Peas in each. The ripe seed is irregularly oval and dark blue.

Sown February 19th; bloomed June 16th; slatted June 28th; and ready for use July 16th.

This is an old variety, and now very much grown by farmers and market-gardeners as a field crop, for the supply of the markets of large towns, the fine large dark green pods always commanding a ready sale. It is very prolific, and is without doubt one of the best varieties for culture on a large scale; but it is one which is very liable to degenerate, and demands very careful attention to preserve a pure stock.

VI. WHITE KNIGHT'S PEAS.

Ripe seed white, compressed and wrinkled. Foliage most frequently dark green and much blotched; but occasionally light green, slightly or not at all blotched.

41. Fairbeard's Nonpareil... NOBLE, COOPER, & BOLTON.

The plant is of a free but not vigorous growth, resembling the

Early Frames both in habit and in foliage, the latter being light green and not blotched. The stems are branching, 3½ feet to 4 feet high, and producing twelve to fourteen very full and plump pods, which are generally in pairs, and contain six to eight very closely packed Peas. The ripe seed is small, white, and wrinkled.

Sown February 19th; bloomed June 14th; slatted June 25th; and fit for use July 6th.

This is an early and very productive Pea, and comes into use at the same time as the Early Frames and the Early Ringwood. The Peas, however, are small, and as a wrinkled variety it is now surpassed by *Advancer*, which is earlier, and produces larger pods and Peas.

(To be continued.)

BLIND BLOOMS OF KEENS' SEEDLING.

IN answer to "C. H. C.," I can tell him for his satisfaction that a few years ago I was precisely similarly circumstanced with regard to the blooming of my Keens'. I had administered powerful manures, and I felt sure I had overdone it. The plants showed remarkable vigour, and for their colour, and growth, were considered wonderful. I allowed them to remain, occasionally forking amongst them, and giving a liberal supply of water in June. The following year I had the pleasure of seeing the same vigour and colour, accompanied by large clusters of bloom, which formed and ripened into beautiful fruit. I would say to "C. H. C.," Do not despair; if all goes on well you will be amply repaid next year.—W. P. D.

EVERGREENS FOR BACK WALL OF A VINERY OR GREENHOUSE.

MANY inquiries have been sent you from time to time as to the most suitable plant for the back wall of a greenhouse or vinery: therefore, I imagine my case to be that of many others. At one time of the year the back wall of my greenhouse or vinery (it serves me for both purposes) is shaded entirely, and is therefore unsuited to the growth of ornamental climbers, such as *Passiflora Buonapartean* or *Mandevilla suaveolens*. Each of these plants I have tried in its turn, and each has been most reluctantly discarded, on account of their not maturing their growth, and a tendency to red spider, which I found it impossible to keep under while my Grapes were in bloom; and the syringe was consequently laid aside. For twelve months past I have grown a fine plant of *Heliotrope*, and it has succeeded tolerably well. I am afraid, however, of my old enemy, the red spider, during the ensuing summer, as I believe that the last season was favourable to my purpose, and I escaped in consequence.

I shall be obliged by your stating if, in your opinion, I should succeed better with *Magnolia fuscata*. My house, measuring 20 feet by 10 feet, faces to the south, is about a mile from the sea, and being on a chalky subsoil is consequently very hot in the summer season.—BRIGHTON.

[We do not think the *Magnolia* will do in your case. If the back wall has any light at all through the Vines, *Camellias* would do well and flower well all the winter, when the Vines were bare. If the shade, however, is dense in summer, and you merely want a green wall, then we would recommend a plant of either—or one of each—of the *Cissus antarctica*, and the *Cissus campensis*; either would soon cover the space; two would do it sooner. There is a conservatory at Gorbambury, the south roof is glass, a large hipped roof facing the north is plastered inside; and one of these plants as far as we recollect, covers the back wall with a mantle of green. When established, it may be cut pretty well as freely as ivy.]

THE FLORAL MAGAZINE for May contains plates of three annuals—*Celosia cristata*, or the crimson-feathered Cockcomb, the tricoloured branching *Larkspur*, and striped *Pæony*-flowered; and a plate of *Verbenas*, one of which—*Grand Eastern*, looks almost like its great namesake amongst a party of smaller steamers. It is a noble-looking flower, though deficient in brightness of colour.

THE LITTLE MARKET-GARDENER;

OR,

HOW TO CULTIVATE AN ACRE OF LAND WHEN PROFIT IS THE CHIEF AIM, AND SHOWING HOW A FAMILY MAY BE SUPPORTED AND SOMETHING PUT BY FOR A RAINY DAY.

(Continued from page 9.)

WHEN you have planted your early Potatoes, and done all that I have recommended in former papers, you will have very little to do upon your one acre of land until the Cauliflowers and Savoy plants are ready for planting out. You will find you have now five rods of land unplanted—two for early Cauliflowers, and two for Savoy, and one for

EARLY TURNIPS.

Towards the latter end of April will be quite time enough for sowing one rod of early Turnips. Do not sow them under hedges, bushes, or trees; do not put any manure under them unless the land is very poor, and if it is a very small sprinkling of guano may be put on and dug in; about 5 lbs. to the rod will be quite enough. Do not be careful about trampling upon the land after it is dug, for it cannot be trampled too hard, so that you have a little loose soil upon the top for the seeds to vegetate in. I sow mine in rows about 1 foot apart, and I do not care if the seeds are not covered at all. The best sort that I have grown for market is the *Snowball*.

CELERY PLANTS.

Mind and look well to the Celery plants. Do not let them remain too long in the pots or pans to be drawn up weakly. If you think they will want pricking out before the Radishes are ready to draw, give them plenty of air, and get them by degrees from under the glass. As soon as the Radishes are off the land dig it over, and put one ton of good rotten manure on in the same way as I advised for Onions. Mark the plot out into beds, and prick out the Celery plants about 6 inches from row to row, and about 4 inches from each other in the row.

EARLY CAULIFLOWERS.

As soon as your Cauliflower plants are ready to prick out mark out two rods of land; have one ton of good rotten stable manure dug into that space deep and well. Do not use pig manure, for if you do you will have grubs kill all your plants. Guano would be the best for them if your land is in pretty good heart—in fact, it would be best for the Cauliflowers if the land was poor, only the land will not be so good for the next crop. When it is well dug form it into beds 3 feet 10 inches wide, and the walks between them about 1 foot wide. Then, 5½ inches from each outside, plant your best plants 20 inches from plant to plant, and one row up the middle. They will then stand 20 inches apart every way. You may then prick out a double row of plants to draw for sale between each of the two rows that are to stand for flowering, thus—

 do not remain there too long; if

 they are not sold pull them up,
 and plant them somewhere else. Earth up those that are to remain as soon as you take the others away, and they will want little else doing to them until they are fit to cut for market.

SAVOYS.

There is no better way to grow Savoy for market than the way I have advised for Cauliflowers, only you must have your beds wider, so that the rows will be 21 inches from each other, and you must insert the plants that are to remain 2 feet from each other in the rows; they will then be nearly 2 feet apart every way.

MANGOLD WURTZEL.

Towards the latter end of April you should sow 2 ozs. or 3 ozs. of Mangold seed (the Yellow Globe I think the most useful) on any bit of spare land to raise some plants for planting out as soon as the Cabbages are off the land.

I have grown very good Mangolds in this way. If the land is clean, dig it over deeply and well; but if it is not very clean, fork it over, and get all the weeds clean out of it, and plant the Mangolds 17½ inches from row to row, and 20 inches from each other in the rows; and if it is a dry time, give them a good soaking of water as soon as planted, and keep them well stirred between until the tops cover the land.

MANURE.

The making of manure is one of the principal things belong-

ing to market-gardening: therefore, do not let anything lie about that will make manure. Let all cabbage, broccoli, and cauliflower leaves, carrot tops, rhubarb leaves, pea haulm, and bean stalks, turnip tops, and all sorts of green things that have no seed upon them be brought, and thrown into the pigsty; and all sorts of weeds, cabbage, broccoli, and cauliflower stalks, and hedge brushings be put together to be charred; and see that you take care of every tub of soapuds, drainage from the pigsty, contents of the slop-bucket, and everything in the shape of liquid manure, and you may give the Raspberries and Rhubarb a good soaking with such a mixture once a-week from the 1st of May to the 1st of August; and you may give the Strawberries a good soaking or two whilst they are in bloom, and you may pour it between the rows of Cauliflowers, Cabbages, Red Cabbages, and Savoy; Celery, too, is very fond of a good soaking with it now and then.

As soon as the summer is over make a large heap of poor soil, and pour such liquids on it, turning it over now and then, and you will find this soil of more benefit to the land than any manure you can buy.

CHARRING.

I do not think there is anything better to put upon land, be it whatever sort of land it may, than charred rubbish. If gentlemen did but know the worth of it, and if men could be found that knew how to char the rubbish, thousands would be employed, and no labour would pay better.

Like everything else, it is very easy to do when you know how; but I have never yet seen the man at work at it that did know how. That it can be done, and done well, is quite certain; for I never saw a heap of vegetable rubbish in my life that I could not char, and I have oftentimes thought that if I were to do nothing but go about to teach people the art of charring I should do more good for my country than thousands who have died for it.

I will show you my way as well as I can upon paper; but a person must see it done to know how to do it well, and he must also have much practice before he is sure of success; for if the refuse is charred too much, I do not consider it good for anything, and if it is not charred enough, it is very little better than if it had not been charred at all; but of the two it is much better under than over done.

Never try to char in a round heap, for in that shape the middle is sure to be charred too much before the outside is charred at all.

In the first place, build up four outside walls in the form of a range of cucumber-pits, not more than 3 feet wide and about 18 inches high, but as long as you have rubbish enough to make it 3 feet high. Let a good fire of coal be lighted whilst you are building up the walls; place a large shovelful of the coal so lighted in the bottom of your pit, about every 2 feet along the middle; then some of your best burning stuff, and mind that you never let it blaze, and to prevent this, if it is fast-burning stuff, sprinkle a little soil upon it now and then, and if it is very slow-burning stuff sprinkle a little of the coal upon it now and then; keep placing rubbish upon it until it is about 3 feet high, and when it is burned through to the top begin at the one end and turn it all over whilst it is still burning, placing all the outside that is not charred in the middle. If you do it cleverly a better heap of stuff was never put on a garden.—THOS. JONES.

(To be continued.)

ROSEWOOD.

WE are much obliged for the following correction:—

"In looking through the April part of your JOURNAL OF HORTICULTURE I observed a mistake which I think ought to be corrected.

"At page 86, in answer to a correspondent, you say that Rosewood 'is the wood of *Physocalymma floribunda*;' and on referring to Dr. Hogg's 'Vegetable Kingdom' I find a similar statement, taken, I presume, from Don's Dictionary. If, however, you refer to 'Kew Miscellany,' v., page 269, you will see that Mr. Benthams, upon the authority of Dr. Allemão, of Rio Janeiro, attributes the Rosewood of commerce to an undetermined species of the genus *Macharium*, and accounts for Don's mistake by saying that it arose from a mistranslation of the word *Rosenholz*, which I find on reference to a German dictionary means *red wood*, and alludes to the red or rose colour of the wood of *Physocalymma*, and not to its odour. Mr. Benthams further adds that the German *Rosenholz* is the same as the 'Tulip-wood' of English cabinetmakers.

"Errors like that of Don are so frequently repeated and difficult of correction when once made, that I trust you will excuse my calling your attention to the answer in question.—ALEX. SMITH, *Kew*."

PINE-APPLE CULTURE.

A FEW years ago in THE COTTAGE GARDENER you drew attention, in an interesting series of articles, to the Hamiltonian system of growing Pines. That system must have long ere this been well proved by the great Pine growers of the country. As I am now starting a new house with pits to be heated by hot water, I should be glad of your advice as to whether it is expedient to grow Pines wholly, or in part, on the plan which Mr. Hamilton adopted.

I would ask, therefore, How are Pines *now* grown at Trentham, Chatsworth, and other places, where once the Hamiltonian system was tried? If so, and you approve of it, how am I to proceed when I obtain suckers?

Tan is expensive with us, I should therefore like to discard the use of it. Will my two hot-water pipes (4 inches) with 3 inches of rubble covered with loose slates and then 20 inches of soil, do in a pit 5 feet wide for growing the Pines or for plunging the pots?—PINE APPLE.

[So far as known to us, no new experiments on Pine-Apple culture will interfere with the general and particular directions to which our correspondent refers. We are unable personally to state the plan generally adopted at Chatsworth and Trentham *now*, perhaps some correspondent will supply our deficiency until we have an opportunity of personal observation. When we saw these places a number of years ago only a very small portion were grown on the Hamiltonian system. At Trentham, so far as we recollect, we never saw such stiff, short, hard-leaved, bushy, dwarf plants, and producing for their size such fine first-rate fruit. These results we attributed to the plants being near the glass, receiving abundance of top and bottom heat, plenty of air, plenty of atmospheric moisture when necessary, and to being planted out in a bed of fine fresh soil, partly charred and mixed with charcoal before being used. We noticed little of the pure Hamiltonian system. The plants were turned out when good-sized rooted suckers. When the fruit was cut one or two suckers were allowed to remain on the stool, and encouraged to grow freely by water and heat, and when well grown the sucker with its roots was removed and potted and plunged, and as that got full of roots it was brought to replace the stools removed, fresh soil being placed all round it. Nothing could answer better than the plan of Mr. Fleming's when I saw it. I think he had a few on the Hamiltonian system—that is, the stools left with one, two, or more suckers, and the soil put round them, and the suckers yielding fruit in turn, and more suckers selected as the fruit were cut. A constant and regular supply of bottom heat is next to indispensable to success with this system. When we tried it a little we found that it had all the merits the enthusiastic projector claimed for it, the chief of which we consider to be the getting abundance of fruit at but little trouble in comparison of the pot-succession system. To obtain fruit in regular succession, and to have them thoroughly under command, I would advise all beginners to begin with the pot plan, and then if they like, to turn out strong plants in a bed of soil, so that they may be freely rooting in it before they begin to show fruit. We would turn out only when, as in your case, you can have bottom heat to a nicety. Whatever may be the reason, many of our best growers, though saying nothing against the Hamiltonian system, when they have to meet the regular wants of a family, are falling back more on the pot system entirely, or, at least, are turning out the plants after they have been grown in pots to a good size before they are turned out. A saving of room is thus effected, as the plants when young will not require half the space. When rough, fibry, half-charred loam is used, even young plants will move with fine balls; but, in general, it is safest to have them in pots, and if pots rather undersized for the suckers are used, we think they root quicker than when planted in a bed of warm soil.

Mr. Ruffet, of Brockett Hall, Mr. Dawson, of Panshanger, and Mr. Beale, of Woodhall, so far as we recollect, grow chiefly in pots; but we are sure that either of these men would turn out first-rate fruit from either planting out ultimately, or planting out at once.

As affording better means of moving, stirring the soil, and the plunging medium, we would advise all beginners to begin with pots, unless they are such experienced waterers that they could put a tiny Cape Heath a few inches high in an eight-inch pot and grow it into a fine specimen. Even when so grown it is an advantage to leave the suckers on the old stool as long as convenient. These will dispose of the three first questions until we have time to go more into the subject, and see more around us; as from the idea that the flavour of the fruit spoils the flavour of the wine, we have grown none of late years.

The best sorts to grow for size we consider to be the White Providence, the Sugarloaf, and Enville. For size and flavour and early fruiting we prefer the Ripley Queen for spring and summer and autumn, and the Black Jamaica for winter, and the Smooth Antigua for any time, and a few others for variety.

The suckers promised you in autumn, if strong, 15 inches long, potted in six pots in rough loam and a little leaf mould in September, plunged into a bottom heat of 90°, will make nice-rooted plants before the new year, or thereabouts. The forwardest of these placed into nine-inch pots in February grown on will be fit to go into twelve-inch or fourteen-inch pots in June, and if encouraged will come in early in the season of 1863, the smaller and weaker ones coming in in the summer and autumn. Everything depends on the size and the condition of the sucker. We have taken strong plant suckers from a stool in September, potted them with a ball, and started them into fruit in March or April. Unless the suckers you receive have come no great distance and are not extra large in size and with roots attached to them, what you receive in September or October, 1861, could hardly be expected to ripen fine fruit before the spring and summer of 1863.

For reasons given we would prefer potting such, and if tan is not to be had, there might be a foot or 15 inches of tree-leaves. Both are useful to the plants from the decomposition of carbon they throw into the atmosphere of the house. This is increased by sprinkling the plunging medium when dry with liquid manure without watering the plants if they do not require it.

The two pipes will give heat enough for bottom heat for a five-foot bed. Openings, such as drain-pipes, should be left, so that at times you can pour manure water down among your rubble, and thus nourish with rich vapour the lower roots of the plants, when it might be undesirable, as in cold, dull weather, to wet the soil much in which the plants are growing, whether in pots or planted. The rougher, more fibry, and open the material used for growing the plants, though closely pressed, the more freely may clear manure waterings be given in the growing and swelling seasons.—R. FISCH.



GROUND THERMOMETER.—We have had submitted for our inspection what appears to be an instrument of great usefulness to the gardener. It is a Ground Thermometer, invented and made by Mr. Casella, of Hatton Garden, who has already introduced several cheap and useful philosophical apparatuses for gardening purposes. The annexed figure furnishes a good representation of this instrument, which consists of a piece of stout ash wood hollowed out in the centre, into which a thermometer is introduced. From the upper part of this piece of wood a chaumfer is cut on which the graduated scale is fixed, and the lower end is shod with a tip of thick brass. The purposes to which this instrument is applicable are various. It serves the ordinary purposes of a thermometer; but its special use is to test the temperature of the soil by thrusting it as deep as possible into the earth; to ascertain the temperature of the bottom heat of dung, bark, or hot-water beds; and it is also used as a dibber for planting or pricking out of small plants. It appears to us to be a very handy instrument, and the price being 4s. 6d., it is within the reach of those who follow gardening either as a pleasure or a profession.

PHENOMENA OF THE SEASON.—What a severe frost we had here (Woodstock) last night (May 8th). I took care to be before the sun with my Asparagus this morning, by cutting every head and casting them into cold water to thaw, which it did

without detriment to them. My neighbours' Potatoes are all "laid flat;" so I gain a point there, as my own, on my system, do not appear above ground for a week to come. Seven shoots only of my Esperiones are injured by the frost. My Vines are breaking very well and promising; but I long to behold the finish of this "Black-thorn winter." The drones appeared in my apiary to-day, which is with me ten days earlier than usual.—UPWARDS AND ONWARDS.

THE ROYAL HORTICULTURAL SOCIETY'S GARDEN AT KENSINGTON GORE.

THE Society's new Garden at Kensington Gore is fast assuming form. The turfing is all but finished, and the last plantings are some noble-looking specimens of *Araucaria imbricata*, brought all the way from Exeter, with large balls tied and sewed up in strong mats. The large trees were banded up the trunks as high as to the branches with bands of hay or straw, and in dry weather they syringe the whole plant, bandage and all—an excellent plan—from early in April to the turn of the night after Midsummer.

The strike among the masons has hindered the completion of the canals and water-basins, but they are going on with them fast now. They put in concrete as for the foundation of a fortress, a foot deep, or nearly so, all over the bottom. It is then easy to build brickwork in cement over the sides of the large bed of concrete, and to finish sides and bottom in cement. That beats all clay puddling in cheapness, in duration, and in efficiency.

I only wish the Londoners, great and small, could see that also as the cheapest way to make garden walks. My way of making walks is merely concreting 3 inches deep with chalk instead of lime, and with lime where chalk is not; then before the 3 inches of concrete are set, and after being well rolled, just to cover the surface with the eighth of an inch of the finest-sifted gravel, to roll immediately, and in three days they are as hard as the bottom of their canals and just as durable. A garden walk 6 feet wide and one mile long could be weeded for twelve months under 1s. the mile. I made the calculation in the garden at Shrubland Park, where, if the gravel were reduced to the width of 6 feet there would be six miles of walks, and for some years the walks there cost only 5s. per annum to weed them.—D. BEATON.

CULTURE OF THE PEACH—No. 1.

SOIL.—I propose in this and a few following communications, to offer some remarks on Peach culture, and the probable cause of success or failure in the different localities in which it is grown; and, as the subject is one of great importance to the gardening world, I will on the present occasion confine myself more especially to one of the conditions on which I base its well or ill doing—namely, the soil in which it is planted; and at a future opportunity will enter into the other features connected with it, as a tree more indebted to the cultivator for his assistance than any other that is capable of withstanding our English winters.

As I have had several inquiries about the condition of the trees, and the crop of fruit the past season, I may so far depart from the intention I set out with of leaving that subject for another time, as to say that the crop was as abundant as in the generality of years, but the flavour was indifferent. In giving a description of the crops of wall fruit—which in the general acceptance of the term includes Peaches, Nectarines, and Apricots—it is common to refer to the general characteristics of the district for such fruits doing well or otherwise. Now, unfortunately, I cannot say the Peach and Nectarine are at home on the soils generally met with here (Linton); on the contrary, I have generally maintained that the Peach likes a soil and situation diametrically opposite to the one we often see it grown in. A Peach under very careful management may grow, and even seem to prosper in dry, chalky, or limestone soil; but its well-being is more due to the careful cultivation it receives, and the pains taken to guard it against the evils its situation entails upon it; but the time at length comes when some disease inherent in that soil will no longer be kept down, and, despite the able and energetic management of the cultivator, the tree perishes all at once, or is so much disfigured and injured by the attack it has received that it is no longer a useful tree. Generally some other agent than the soil it grows in receives the blame of this, and I do not by any means infer but that sometimes other causes will occasion the evils complained of: but I

certainly do think that an attack of insects, or of mildew, is rather the consequence of disease than the cause of it, and I regard the condition of the plant at the time it is attacked as of the most vital importance to know ere we decide on condemning the enemy that does not do the most harm. That soils have much to do with the welfare of all plants and fruits is well known, and that the Peach may be made to grow in a soil at variance with what it likes is also true; but it cannot be made to grow so well in that soil, and consequently, cannot be in a position to endure the evils it is beset with in a climate so different from its native one. Some plants whose natural habitats are dry walls or other dry situations may be made to grow in swamps; but they do not grow so well in the latter place, and the same may be said of the Peach: consequently, we may infer that the Peach, too, has its favourite material to grow in, and the question is, Where is its locality and by what means are we to know it?

In entering on this subject it is hardly necessary to travel out of Great Britain, only so far as is necessary to refer to its doing so well in the central and southern States of the North American Union. In like manner we are told it is at home in Australia, and, I believe, is scattered freely over the western and part of the centre of the great Asiatic Continent, and this region we are told is the native home of the Peach. But it is not necessary to trace it to its origin. Its cultivation in America may also be passed by; but as it is said to thrive so well in Australia, it is worth while taking a glance at the condition of the soil and other features there, to see in what way we may expect to copy it here. In some of those extensive tracts of land which consist of a thin black crust, rather than a fine mellow soil adapted to husbandry, the Peach is said to thrive and do well, even where many native trees and shrubs cease to do so: consequently, we must look for something either in the soil or climate, or both, to cause it to do so. The climate we cannot well imitate out of doors, and we still hope to hear of the Peach being successfully grown there: we must, therefore, endeavour to show how it is likely the soil we have may be made more congenial to it by as simple an addition to its component parts as well can be given; and as has been shown, the depth of soil is not always a criterion of its doing well at or near the antipodes, we must look to other conditions as well, and take a peep at the state of the water that drains from such a soil, and where we find it what is locally termed brackish and unfit to drink, a tolerable hint is thrown out what we may expect from a soil the chemical composition of which differs so widely from the one we are so much accustomed to plant the Peach tree in.

The readers of THE JOURNAL OF HORTICULTURE will, perhaps, remember, that about three years ago I called attention to the excellent state the Peach trees were in at Knowsley, the princely seat of the Earl of Derby; and as that place is only some six or seven miles from the west coast, and from where the westerly gales frequently drive the salt spray so detrimental to so many things, but which I believe to be beneficial to the Peach, we may from this conclude that salt is a necessary ingredient in the soil which produces the Peach; and as I have also seen the Peach thrive remarkably well near the east coast, in a soil apparently widely different from the one at Knowsley and Lathom House, which I have more particularly described, I cannot but think that the saline particles which pervade the atmosphere have exercised some influence on the soil, and that both united are suited to the wants of the Peach. It is true that excellent Peach trees may be met with at great distances from the coast—in fact, in the interior of the kingdom; but salt is also found at other places than the seashore, and may not the soil in the neighbourhood be more or less impregnated with this article so as to become suitable to the growth of the fruit we now call attention to? and as all soils are not alike constituted, it is reasonable to suppose that the one which contains a greater proportion of salt than is generally met with, is the one most suited to the growth of this useful and yet somewhat capricious tree.

In the twentieth volume of THE COTTAGE GARDENER, page 71, a correspondent informs us that in the plains surrounding Buenos Ayres the Peach thrives with extraordinary vigour, in a soil that seems almost encrusted with salt after the heavy rains have subsided; and at page 58 of the same volume another correspondent speaks of the value of this much despised article as tending to improve the Peach; and as, has been before alluded to, the vigorous condition it is met with in Australia where the water is so bad, we may conclude that the salt pervading the district has much to do with its fertility as well as spoiling the waters; and, having arrived at that conclusion, it is not difficult to reduce

this theory to practice, for the article we have to deal with enters more easily into the composition of most things than almost any kind of manurial substance we know of; and we hope to hear of its being more extensively used as a renovator to trees falling into decay, or in preserving those that are healthy from going wrong.

In making the above comments on the Peach, I am well aware I am offering an opinion at variance with that of some eminent Peach growers. Our late talented writer on these matters, Mr. Errington, was of a different opinion, and thought the well-being of the Peach trees along the western coast line was owing to the greater amount of moisture the air is loaded with there than more eastward; and some writers attribute early or late frosts as the source of all their misfortunes with the Peach. Certain

it is that these circumstances have something to do in the matter, nevertheless I feel inclined to think the radical evil lies in the absence of that agent I have been advising the use of. And though many other untoward circumstances may be urged, and much useful knowledge obtained by the parties advocating different theories, or it may be practical results, coming forward and stating them in *THE JOURNAL OF HORTICULTURE*; and if I am wrong I will frankly admit it; if otherwise, I trust those who have the means of giving this useful ingredient a fair trial on such soils as they are forced to plant their Peach trees in, will come forward and state the result; and at another time I will endeavour to explain what may be done to make soils which at present are antagonistic to the well-being of the Peach better adapted to its growth.

J. ROBSON.

CONVOLVULUS MAURITANICUS.

THIS pretty little half-shrubby *Convolvulus* is a native of the interior of northern Africa, where it was discovered by M. Séjourné, and first described by M. Boissier in his "*Plantes d'Espagne*."

ovate, or roundish-ovate, an inch and a half long. The flowers are an inch to an inch and a quarter across, with a purplish-blue limb, and a white centre and tube. They are produced one to three together on long slender footstalks from the axils of every leaf; and these, coupled with the trailing habit of the plant, give it a graceful and ornamental appearance when grown in suspended pots or baskets.

During winter *Convolvulus mauritanicus* requires the protection of a pit or greenhouse. In spring, if cut back, it throws out a profusion of its long trailing shoots, and as the season advances it may be turned out as a bedding plant, or introduced into vases or on rockwork, where it keeps up a succession of bloom all through the season.

For growing in pots or suspended baskets and vases it is admirably adapted, its fine slender trailing habit being so applicable to that style of decoration.

Our figure was taken from a plant grown in the nursery of Messrs. E. G. Henderson & Son, of Wellington Road, St. John's Wood, from whose Catalogue we extract the following:—

"A highly ornamental and drooping half-shrubby plant, of a neat, well-branched, and slender habit, with roundish-oblong leaves, and a profusion of very elegant light blue blossoms upwards of an inch in width, forming an admirable plant for suspended basket or vases; also an unique and effective bedding plant, or carpet-like belt, for surrounding flower-beds, and a charming object for rockwork and flower-garden baskets. Its gracefully procumbent growth is seen to great advantage when planted on the top of small mounds, by which its picturesque porcelain-blue blossoms are conspicuously beautiful. The plants require protection in a greenhouse or pit, and in the early spring season it should be cut back, and as its dense growth breaks at every joint, it blooms profusely from the corresponding shoots at each axil and side branch: by thus obtaining a free and luxuriant growth, it will prove a charming plant for almost every desirable position in flower gardens and conservatories where favourably exposed to light. Its free and long-continued bloom will prove its value in adding to the desirable variety of plants for the purposes above named."



The plant is of a trailing habit of growth, with long filiform flexuose stems, which are not branched, and entirely covered in every part with very minute soft white hairs. The leaves are

and conservatories where favourably exposed to light. Its free and long-continued bloom will prove its value in adding to the desirable variety of plants for the purposes above named."



THE TWO GREAT PEAKS OF THE BUNDERPOOCH AND
VALLEY OF THE JUMNA.

THE HIMALAYAS AND THEIR PRODUCTIONS.

No imagination, however fertile, can realise the snowy range of the Himalayas, and no pen can pourtray adequately the grand massings of rocks, and forests, and snow-clothed pinacles towering through the clouds, spread over hundreds of miles in this chain of the loftiest mountains of our world. The best description we have met with is by one who unites in his own person the rarely-combined qualifications of the sportsman and the author, and he thus tells of his first look from Landour, upon these marvellous elevations.

"It was, indeed, well worthy of the burst of admiration which broke from my lips as, before sunrise next morning, we rounded the shoulder of the hill and stood on the north side of the Landour ridge, and I saw for the first time, rising before me in all its majestic sublimity, the long unbroken line of snowy mountains. To have as extensive a view as possible, we ascended to the top of a little hill from which both the snowy range and the plains were visible. No words can do justice to what was now before us. One-half the horizon was bounded by an unbroken wall of snow, surmounted by fantastic peaks of every conceivable form, rising clear and high above the vast wave-like wooded ranges that stretched before us to its base. Directly in our front it appeared to be about forty miles off; the outline clearly and sharply defined against the sky, and the smooth rock, in places too perpendicular for the snow to lie, plainly visible. Receding into distance on either hand it was more indistinct, particularly to the west, where a dim shadowy vapour blended snow and sky together. From some of the highest peaks light clouds seemed to rise, drifting slowly away in the direction of the wind, but disappearing soon after leaving the peak from which they rose. This is a common phenomenon, and I then imagined it was a vapour drawn from the snow by the action of the atmosphere, but I afterwards found its origin to be this: The snow in some places becomes frozen into particles as fine as dust, and is then whirled into the air by the first gust of wind, at a distance appearing like a light cloud. I had pictured to myself ranges rising one above another till the last was topped with snow, but the intervening ranges seemed nearly all of the same height as the one on which we stood, while, enthroned in its own lonely grandeur, the snowy one rose majestically as if from the summit of the most distant. The scene may not have the awfully grand appearance that some present, when one has penetrated into the recesses of the snowy mountains themselves, and standing at their feet gazes on the vast spectre-like masses rising directly overhead; but there is something so striking in its calm and still repose when seen from this distance, that the first view of the snowy range from the Landour ridge will impress many minds with more lasting feelings of admiration than closer views. As the sun rose the whole lost much of its vivid clearness, a shroud-like vapour gradually stealing over the scene, so that in many places the before sharp outline of the snowy peaks against the sky, could no longer be traced. Turning our faces the other way, the valley of the Dhoon lay at our feet, encircled by the low range of wooded hills, the dark aspect of which was broken here and there by bright yellow spots, the sites of landslips, which sparkled like beds of gold in the sunlight. The valley appeared nearly all in a state of nature, either dense forest or grass jungle—the reclaimed portion round the town of Deyrah, on each side of the road from Rajpore, and here and there round isolated villages, looked small indeed in comparison with the whole. The rich green tint of the spring crops of corn in the cultivated parts was at this distance very striking, and contrasted well with the brown sombre hue of the grass jungle, and the dark shades of the forest. Beyond the hills that enclosed the valley the plains of India stretched far out into the distance, the horizon so remote that the division of earth and

sky could nowhere be distinctly made out. Two silver threads meandering through the maze showed the courses of the Ganges and Jumna, and small silver specks the lakes and swamps. Who could gaze on such a scene, the ideal of sublimity on one hand and of calm and repose on the other, and not exclaim, 'What a glorious creation!'—(*A Summer Ramble in the Himalayas.*)

Those who have visited Mont Blanc may deceive themselves into the belief that they can form a mental estimate of the Himalayas, but such a comparison is vain, that comparative pigmy reaches little higher than to the girdle of those giants of Hindostan. It rises to an elevation of 15,732 feet, whilst they exceed 28,000 feet!

We are almost successfully tempted to wander far and wide, as well as high, among those glorious mountains, but those regions of the range characterised by the Conifers and the Rhododendrons are our more fitting theme. These, too, will be the most interesting to our readers, and to aid them in comprehending these regions we give the following extract and maps from a communication to the late Baron Von Humboldt from Dr. J. D. Hooker.

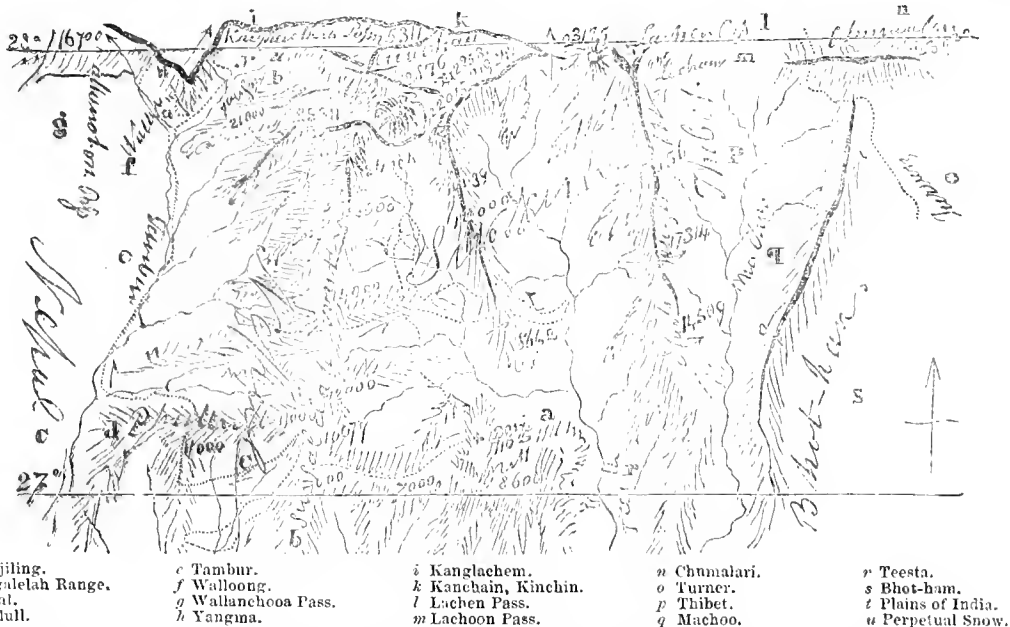
Dr. Hooker started from Darjeeling at the foot of the range, and thus proceeds with his narrative:—

"I packed up my things and set out on my road, which ran westward, through deep defiles (3000 feet above the sea) and leading up a very high cross chain running out from Singalelah, ascends to a height of 11,000 feet. Thus I made my way to the Tambar river, in the valley of which runs the eastern highway leading from Ham (or Nam?) to Walloong, on the Thibetian border. Reaching this river, at an elevation of only 2500 feet above the sea, I ascended it, making my way as well as I could through a tropical vegetation, which reaches to constantly snow-covered spurs of the Kauchain. On the 25th of November I arrived at the boundary of Rice-cultivation and Hindooism, and the commencement of a temperate zone, and of the Bhotia people. The change from buffalo and rice, to beef and wheat

"The village of Walloong lies about 11,000 feet above the sea. The pass, situated a day and a half's march on the further side, is about twelve miles W.N.W. from the Kauchain peaks, and twenty-five from the latter. We reached the summit in two days, with much toil, for the ground at 12,000 feet was deeply covered with October snow, which at 13,000 feet does not melt until the following March. The summit of the pass is 16,700 feet high, but still three days' march distant from the plain of Thibet, which is here cut off by two mighty chains, branches of the Kauchain, which, of less elevation than my point of view, stretch in a northward direction toward the plain. Mountains and valleys were now covered deeply with snow.

"The limit of the eternal snow, at this point, is, as nearly as I could determine, 14,500 feet above the sea; and, judging from what I saw afterwards, I believe this is near the truth, although it is impossible to speak with exactness—by the bounding of the snow which had fallen in October.

"This is not the most eastern of the passes leading to Thibet, and, therefore, not the nearest point to Kauchain attainable in eastern Nepal. I resolved to visit, on my return to Walloong, the valley lying eastward of this, where a higher but seldomer-used pass led to Thibet. Descending the Tambar, I penetrated, in a north-east direction, into the Yangua valley, which expands into a broad, treeless ravine, wholly filled up with lake-beds. These beds are bounded by enormous rocky dams, which have been hurled across the valley when it was all under water. To express it briefly, while the Thibet Plain has accumulated its drift-deposits (1000 feet thick, by actual measurement, in western Thibet) the waters, which stood at a height of 15,000 feet in the Yangua valley, have left parallel roads or banks, on the flanks of this valley, which are as fine as those of Glen Roy, in Scotland. Lateral ravines have washed out masses of rock into the valley, which have been piled up into mountains, and perfectly bridged it over, so that, on the subsidence of the waters, they formed dams. The terraces are perfectly parallel on the two sides of the



The broad black line indicates perpetual snow.

was sudden. Ascending still higher, through stupendous mountain defiles, toward Walloong, the second transition from beef to bison (the Yak, the progenitor of which, is the undescribed wild bison of the Thibetian plains) was more gradual.

"Walloong is the Cis-Himalayan commercial depôt of the Bhotias. Here I was received with mistrust, and obstacles of all kinds were opposed to my design of going towards the passes, which were the more effective that the season was far advanced, and they withheld provisions from me. Luckily I had still a dozen Bhotan men with me, a parcel of scamps who would frighten any one, and who, by insulting, abusing the authorities, and threatening to break open the warehouses, placed me in a condition to start for the passes after a halt of two days.

valley, above the lake-beds; they ascend like steps, along the steep declivities, and are everywhere strewn with vast blocks of rock. In the side valleys, one sees now only small patches of glacier ice, which have deposited drift and debris, just in the same manner as the vast beds twenty yards long, have been deposited by the greater ice.

"I have here sketched a plan of the valley, and shown, that these bridges across the valley, a mile long, one 800 feet high, and all composed of masses of rock, heaped up too irregularly to allow of a vegetation extending to them, are a real effect of mountain ice, which has been flooded out from the side valleys."

"These astonishing records of the power of glacier ice admit of no other explanation; and many particulars so vividly remind

me of the shores of the Antarctic Ocean, that I cannot have any doubt of the correctness of my conclusions.

"The village of Yangma, at the fork of the terraced valley, lies above the limit of shrubby plants, and stands on the flanks of a level terrace of drift and rocks, rising 300 feet above the bottom of the valley, and two miles long. The village is 13,700 feet above the sea (according to the reading of two barometers, and the determination of the boiling-point) at which height Wheat, Peas, and Radishes were cultivated, the harvest falling in the month of September.

"From hence I turned in the north-western direction, toward the Kanglach Pass, which leads to Thibet; but, on account of the deep snow, had great difficulty to attain the height of 16,000 feet. Three dry lake-beds in this valley (eight in all), were of exactly the same origin as those below the village. The uppermost, at 16,000 feet was quite filled with snow, and surrounded by glacier mountains."

We must postpone our extracts relative to the plants of the Himalaya until a future Number.



- a Yangma River.
- b Boulder Deposits.
- c Lofty Terraces.
- d Mountains.
- e Village and Terrace.
- f Terraces on Flanks of Valley.
- g Glacier Valley.
- h Lake-bed.

EFFECTS OF LAST WINTER ON PLANTS IN ENGLAND.

(Continued from page 99.)

THE following notice of the present state of the Coniferae and shrubs here, will serve to show the devastation which has taken place. The situation of the grounds is exposed. The soil is of an adhesive, argillaceous nature.

Arancaria imbricata.—Very much cut; the primary shoots are all killed back.

Cedrus deodara.—Very much injured; and in many instances they have lost the whole of their leaves, and the young wood of last year killed.

Cupressus funebris, killed; *C. Goveniana*, killed; *C. Knightiana*, browned; *C. macrocarpa*, killed; *C. McNabiana*, killed; *C. sempervirens*, all but; *C. torulosa*, killed; *C. Udeana*, killed.

Fitzroya patagonica.—Killed.

Pinus apulcensis, killed; *P. Benthamiana*, browned; *P. Gerardiana*, killed; *P. insignis*, killed; *P. Llaveana*, killed; *P. macrocarpa*, much injured; *P. montezeuma*, much browned; *P. Sabiniiana*, killed.

Sequoia sempervirens.—Very much browned.

Libocedrus chilensis.—Killed.

Thuja gigantea and *Wellingtonia* are perfectly green.

Arbutus unedo and *procera* are all killed.

Aucuba japonica.—Much injured, but breaking back.

Coanothus papillosus.—Killed.

Cerasus lauro-cerasus (Common Laurel).—All killed down to the old wood, and have lost the whole of their leaves.

Cerasus lusitana (Portugal Laurel).—Is in some instances but slightly injured, whereas in others it has lost most of its leaves.

Cistus ladaniferus.—All killed.

Cotoneaster microphylla.—Killed down to the ground.

Escallonia macrantha.—Killed to the ground.

Eunonymus japonicus and *variegata*.—Killed.

Fabiana imbricata.—On a south wall, killed down.

Forsythia viridissima.—Slightly injured.

Garrya elliptica.—Killed partly down.

Ilex.—Several of the varieties have suffered, and in some instances are losing their leaves.

Laurus nobilis (Bay).—Killed down to the ground.

Ligustrum japonicum.—Killed.

Magnolia grandiflora.—Grown against a south wall very much cut.

Phillyrea rhamnus, *P. angustifolia*, and *P. latifolia*.—Very much injured, several being quite killed.

Photinia serrulata.—Killed.

Quercus ilex.—Several of the varieties are slightly injured, the young twigs being killed back.

Rhamnus alaternus are quite killed.

Ulex europæus flore-pleno and *stricta*.—Killed.

Yucca.—Some of the varieties are injured.

Tritoma uvaria.—Quite killed.

Gynærium argenteum are all killed.

Jasminum Reevesii.—Killed down to the ground.

Roses have suffered severely. Budded Roses, and Roses on all stocks are mostly killed. Climbers upon walls where not protected are all cut, but are springing from the root. Gloire de Dijon is the only Rose in its class that has defied the weather.

I may mention that Hybrid Perpetuals upon their own roots are now springing very strongly, and I expect a good autumn bloom from them.

I would suggest the advisableness of planting many more of the Roses upon their own roots than is usually done. I well recollect Mr. Beaton years ago suggesting the advantage of planting Hybrid Perpetual Roses on their own roots, and I hope he will give us his present opinion on that subject, being convinced that such will be duly appreciated.—GEORGE WESTLAND, Kingston Hall, Notts.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THIN out all advancing crops as soon as they are fit; if not attended to in good time the plants are drawn up weakly, and never produce a satisfactory crop. *Broccoli*, prick out the plants, as also *Cabbages*, as soon as they are fit to handle; to be watered after transplanting, and shaded from the mid-day sun for a time. When thus treated the plants are always better than when left to grow in the seed-bed till wanted for final planting. *Celery*, attend to in its various stages; do not let it suffer for want of water; if the surface of the soil gets hard and caked, stir it up. *Cucumbers*, the ridge lately recommended will now be in a fit state to receive the plants. Plant them out without delay, and shade the hand-lights for a few days. *Dwarf Kidney Beans*, plant out those that were sown in pots or boxes on a warm border. Sow a succession crop, as also *Scarlet Runners*, and *Haricot Beans* where they are esteemed. *Leeks*, make a sowing, to plant out for winter use. *Lettuce*, prick out a few about once a-week. *Potatoes*, earth up those that have just made their appearance above ground. *Tomatoes*, plant out in light soil under a south wall; also *Chilies*, *Capsicums*, and *Basil*. Sow seeds of *Vegetable Marrow*, and *Cucumbers* for succession and for Gherkins.

FLOWER GARDEN.

As all apprehensions of danger from sharp frosts may now be considered over, the planting out of half-hardy plants for the summer and autumn decoration of the flower garden may now be proceeded with, and carried on as vigorously as circumstances will permit. If previous instructions have been followed the plants will now be so injured to the weather that even a few slight frosts, if they should occur, will do them no harm. When planting the beds the principal object should be to produce a striking effect by employing plants only of a decided colour, principally red, blue, and yellow, using white for separating the different divisions. The system is very effective where the colours are well contrasted, particularly when viewed from a distance, and where the beds are not numerous, and where there is some breadth of grass or gravel to neutralise. Where more variety is considered pleasing, there is no want of colour to effect any desired object. This is accomplished by using a decided colour in the centre of the bed, and surrounding it with an edging of a contrast colour. See that all edgings hitherto neglected are put in order for the summer; do not edge beyond the original boundary, and keep the walks filled with gravel. Let the roller be passed frequently along the edges in order to

level them to the walk; this takes away the harshness of the outline. Auriculas should now be placed on a north border, the seed will ripen very well there if the pots are well drained and placed on a layer of ashes to prevent the ingress of worms, they will take no harm from exposure. Polyanthus require more shading than the Auricula, else they are very liable to the attacks of red spider. Do not delay putting down the sticks to the Carnations and Picotees, tie up Pinks, and plant out Dahlias that have been properly hardened off.

FRUIT GARDEN.

Water all trees that have been planted this season, and give them an extra mulching of dung. See that neither the red spider nor green fly get ahead on wall trees, nor the caterpillar on Gooseberry bushes. Where Gooseberries are much esteemed for dessert, thin the fruit on some of the choicest sorts, to be watered occasionally with liquid manure and to be protected with nets from birds.

STOVE.

As the plants increase in size allow them plenty of room, especially plants with large foliage. It will be necessary to use the syringe frequently to keep down insects, assisted by fumigation where thrips are likely to get established. The white and brown scale can be kept under by carefully hand-washing the infested plants with a strong lather of brown soap and water, soft brushes, or pieces of sponge, are the best instruments to be used for the purpose that no injury may be done to the leaves. Aclimenes to be placed where more air can be given, to be staked out neatly as the shoots advance. Gloxinias require a partially shaded situation and moist heat; and Gesneras similar treatment with the addition of more light.

GREENHOUSE AND CONSERVATORY.

A good number of plants—such as Epacris, Diosmas, and many other New Holland plants, Myrtles and other things that have done flowering may be removed to any other convenient place, and being cut back and repotted, will, if properly attended to, make fine plants by the autumn. Make a sowing of Chinese Primrose and Cinerarias for spring decoration. W. KEANE.

DOINGS OF THE LAST WEEK.

CONTINUED turning all available ground in the kitchen and flower garden. We are still keeping the latter as much as possible rough and in ridges, to expose a greater surface to the atmosphere. Independently of these turnings the ground is yet very cold, and offers no hope of us being able to turn out bedding plants for a fortnight or three weeks to come. Watered early Peas with heated weak soot water with a little lime in it, alike to supply moisture and heat, and keep the grubs at a distance. Never saw so many as this season; but thanks to liming, catching and trapping, they are now comparatively harmless. A few brewer's grains laid in little heaps, or a broccoli leaf rubbed with fat on the lower side, are rare things for attracting the slimy fraternity, and once luxuriating in fat, or getting drunk on the grains, they may be quickly picked up with the help of a lantern the last thing at night. Watered the Cabbage and Cauliflower plants a second time with warmed manure water, as the first had given them such a start as fairly to dispose of more bolting for the season; pulled the earth with a hoe to the stems, alike to keep moisture and the heat from the water in, technically earthed them up, but left a hollow along the row to hold more water if necessary, instead of drawing up the ridge to a point to throw off water as nicely as a span-rooted house, or a well-feathered duck's wing. Sowed more Peas in succession. Spawned the Mushroom-bed when surface about 80°—the bed mentioned the other week as consisting chiefly of stubble and tree leaves. Put 2 inches of droppings all over, and a thin layer of sheep-droppings picked off the feeding-ground; and as the heat is mild, will earth up to-morrow. Of course, I should have preferred nice droppings from a stable filled with horses fed for riding and hunting; but if a man now-a-days cannot get what he wishes, he must learn to be content with getting what he can. Fine Mushroom-beds are made from well-fermented dung, sweet as for a hotbed; but that, too, just now, is out of my reach, with the dung of four horses to supply all my multitudinous wants.

Kept thinning Grapes at all convenient opportunities, night and morning and dull days, it being next to manslaughter to keep a poor hard-working fellow at such work with the sun beating upon him and almost making his brains to melt. The

people who insist on such work being done at such times are rightly served when the berries are discoloured or rusted, and all sorts of ways, through sweaty hands, greasy hair, and scissors that under such circumstances will not be kept clean. Such a practice, like nailing on a north wall with the ground covered with snow and the frost not much above zero, we hope to see numbered with the things that were, so that the rising generation may escape the aches and pains and general debility that now too often overtake the gardener when he ought to be just in his prime.

"Good gardening consists in attention to trifles," was a favourite dictum of one of our old masters. We never pass a season without finding it too true. A favourite rule of our own is, if, from economy, air cannot be left in forcing-houses and pits all night, give a little early in the morning at the highest point in the house or pit, even if from the cold becoming more intense it should require to be taken away ere long. The theory of the thing is, that the enclosed air of the night is changed, and if the sun should come out strong, the smallest opening—say half an inch or less in a nine-foot house, will prevent the heat and vapour so accumulating as to scald the plants. We had three lights in a pit of as pretty Melon plants as the eye ever rested on, trained to wire at a suitable distance from the glass, and air being forgotten too long on a sunny morning many leaves were scalded, and many are a little spotted as if you had poured boiling water in squirts; and now, though they will get over it, instead of being first in, as they would undoubtedly have been, they will be beat by a succession crop in a dung-frame. Our active assistant would not believe that any harm was done, because the leaves showed little signs for two or three days; but the first notch of air given told us clearly what would be the case. The evil under such circumstances might have been lessened, if instead of giving air at all the place had been closely shaded, and the walls, &c., inside moistened, and air only given when the house had got much cooled. When houses are thus left too long without air, and in cold, sunny weather in spring, the plants run a double risk—first of being parboiled by hot vapour, and then burned by a rush of dry, cold air when they are thus weakened. If a small opening at every sash had been given an hour before, even a quarter of an inch, the heated vapour would have so escaped, and the plants been so dry in consequence, that if the sun with the air on had raised the temperature to 90° or 100° there would have been no harm done.

I said so much last week on the training of the Melon to prevent much pruning, that I said little or nothing about the setting and perfecting of the fruit. I am not sure now what I exactly did say, and, therefore, if there is a line of repetition I hope to be forgiven. As soon as the tertiary shoots push from the axils of the leaves at the ends of the secondary shoots from which the buds have not been removed, and show fruit at its first or second joint, they must be stopped either at the fruit or the joint above it. I prefer the latter. If they do not show fruit at the first or second joint, stop, that they may throw out fresh shoots. If, however, there are six or seven of these side or tertiary shoots at the point of each of these main secondary shoots or bines, they will generally show enough of fruit without this stopping again. The great thing is to get the right number on each shoot or plant to show and set at once. This when we desired to have four fruit on each plant, and found we were likely to have only one, if that was a large-fruited kind, whenever that one began to swell it would so take all the running that others would have no chance. It is best, therefore, to pull or cut off that one, so that a fresh start may be made by getting all the requisite number of flowers in bloom at a time. This secured, the setting is almost a matter of certainty, owing to the strength in the plant before the blooms are allowed to show at all. Two things more, however, are essential. First, there must be enough moisture at the roots to secure a healthy vegetation, and yet the surface of the bed must be dry to secure a dry atmosphere, to secure a free setting. Experienced hands, therefore, try to give as much water before the blossom opens as will keep the plants healthy until the young fruit are swelling, *giving no water whilst the plants are in bloom*. If there is any difficulty in this, it is a good plan to have two small drain-tiles—say 3 inches or 4 inches in diameter, and 1 foot long, set up in the soil of each light, the top end covered with a lid. Through these water may be poured to keep up moisture below, even when the surface of the bed is dry. If the surface of the bed is thus dry, the blossoms may be fertilised in the usual manner, and they will generally soon begin to swell. It requires a good

portion of water to swell a Melon nicely; but care should be taken not to give much in dull weather, and none at all as the fruit approaches perfection, or it is likely to be deficient in flavour, and also liable to crack and rot. If the soil should be too dry to meet the demands of the plant and fruit, it should be watered below by such means as the above, whilst the surface soil is comparatively dry.

Moved out Strawberries when gathered from; and some hardly worth house room from what remained on them, were placed in a warm place to afford some pickings of small ones. Placed in a number of those potted the other week. Prince of Wales and others swelling nicely, and Queens setting freely in the sunny weather. Never had the plants so small in autumn, and yet there has been nothing to complain about as to the crops. Like a correspondent's case the other week, I begin to believe it is possible to have these in pots too strong. I can well believe his case, as an amateur invited me to look at his garden, and chiefly his large Strawberry-bed the other day, which he said looked so green and nice—and so it was if the leaves were the useful part, like the Cabbages, for there was scarcely a single truss of bloom. I would not have risked a threepenny-piece on all the Strawberries, though there ought to have been some bushels. From what I learned, I believe high feeding and the severe frost combined did the mischief.

Greenhouse and bedding plants much the same as the last week or two.—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c."* 162, Fleet Street, London, E.C.

MENDING INDIANRUBBER HOSE (*Kate*).—To stop the holes in the hose, dissolve Indianrubber in naphtha until this becomes as thick as cream, and then, when the hose is quite dry, insert the cement between the lips of the wounds and press them together. Do not use the hose until the cement has dried. The buds between the sashes ought not to be rubbed off, nor do we see any impossibility in the way of moving the Vine stems a few inches inwards from the front of the orchard-house, so as to allow the windows to be opened quite enough for ventilation, although they do turn on pivots. However, on such difficulties, they are the best judges who can see them with their own eyes.

APPRENTICESHIP TO NURSERYMEN (*H. G. S.*).—The premiums required vary so much that we should mislead you by quoting any. Advise, stating what you require for your son, and judge for yourself from the answers you receive. The cheapest are not always the most preferable. There is no work published exclusively on hybridising.

DRAINING-TOOLS (*A Subscriber*).—Write to two or three of the implement makers who advertise in our columns. Tell them what you require, and ask them to send you prices.

BELT BEFORE A HOUSE (*Franciscea*).—Your bill has been read three times after being carefully considered upstairs by a select committee, who altered that clause only which defines the belt of trees as "a monument of your own and your husband's love of horticulture," to that of your love for one another. The old Yew-hedge 15 feet high, bare at bottom and flourishing above, is not to be removed till the second week in September. Meanwhile, however, a trench 2 feet wide and as deep as the roots, is to be cut on each side of the hedge, and at 3 feet from the stems, and all the roots are to be cut to within that distance. The best of the soil, and some fresh soil or road drift to be added, is to be returned into the trenches for young roots to form there; and all the old boughs of the Yews, and the young ones that are longer than 2 feet from the stems, are to be cut to that distance along the bottom of the hedge, and those at the top to 18 inches, regulating the cuts so as to make a regular slope all the way to the top. Roots, tops, cuts, and digging out and filling in to be done and finished in proper garden-like style as soon as hands can do them this present May. After that the whole space for the belt is to be trench 2 feet deep, mixing the top and bottom soil as much as possible, and carting some fresh soil from somewhere—no matter how heavy or how light it happens to be, so there be a dozen loads of it to spread over the trenched surface, and to have the sun and rains of summer to mellow it, and render the top part the best for planting with in September. In that month the hedge is to be transplanted, and set at 3 feet from the boundary wall, and nearly as close together as the plants stand now, or as near to that as the roots will allow of in planting. Each tree is to be watered most abundantly as it is being filled in, in order to wash the soil into every opening between the roots, and between the bottom of the balls and the subsoil. The reason why Scotch Firs do not look well in your neighbourhood is the bad way they have therabouts of not sufficiently preparing the soil for them. But under the treatment we have directed for the Yews they will be as sure as Scotch all over the borders; and more sure if you choose the trees now, and see they are not much higher than the boundary wall, or 6 feet. A row of them, or they one-half and *Pinus maritima* the other half, alternately, must come in front of the Yew-hedge; and 6 feet from it, and in front of them, variegated Hollies, Portugal Laurels, and some flowering shrubs—as Lilac, Guelder Rose, two or three Honeysuckles tied to stakes, Ribes sanguineum, with what you please in smaller things in front, only have plenty of evergreen *Berberis aquifolium*. We will send the Index when you favour us with your direction.

FLOWER-GARDEN PLAN (*A New Reader*).—Your plan and the planting do you much credit. But there is one mistake in the midst of it. The large mixed circle completely spoils the effect of one of the best plans we have seen this season. Get up some moonlight night, turf that entirely over, and say nothing about it.

WALTONIAN CASE (*An Old Subscriber*).—We are not sure how much water is needed for the circulation in the Waltonian Case, and Mr. West is now out of our rounds to see him. But we recollect the quantity is very small indeed in proportion to the size, and that is the whole secret of the success of the contrivance. Three pints and a half is one-half more water than we should think necessary with a lamp burning and keeping the water constantly up to near the boiling-point. If both ends of your Case are not heated there must be something wrong inside the Case—perhaps a bit of rag or cork has got into some of the channels. The inside of a Waltonian Case is nearly as intricate as the inside of a Geneva watch, and no one could make the least approach to making one from all the drawings which have been made of it. No one but the maker can put to rights any derangement in the working part of the Waltonian Case. All that we know is that Mr. West made every one of the tin cases in which the heating circulation is made from the first, and that the stock in hand has not yet been equal to the demand for it. In the winter of 1859 and 1860 some of the men were up most nights, and yet in February and March every post brought complaints of delays in supplying the article—that is a fact that is known to a score of the people of Surbiton. All last May and June they were incessant in their endeavours to prepare a full stock for this spring's propagation, and your Case could not only not belong to the first edition as you surmise, but it could not even be of the sixth edition.—D. BEATON.

MANURE FOR A FLOWER GARDEN (*A Subscriber*).—For use by "a lady," where no labour can be had for using stable manure, and where there is no tank for liquid manure—by which we presume you mean house sewage—there are no fertilisers better than guano and superphosphate of lime, which can be had at our office in tin canisters, with directions how to employ them.

FLOWER-BEDS (*A Cheshire Subscriber*).—If the windows or front view of this garden is opposite 4 or 3 the planting is very good, but if the front view is opposite 2 or 5 there is the objection of the cold colours being in front instead of being the farthest from the eye. Some indication of the house or of the front view should accompany every garden plan.

FLOWER-GARDEN PLANS (*R. F. S.*).—You have done this very difficult garden remarkably well this season. The *Humeas* will give it an air of graceful elegance planted in that style, and we should think any one looking over it from beyond the moat must be struck with the whole arrangement. (*A. M. T.*).—The planting is good, but the principle of composition planting is destroyed in the centre bed. The plants in that centre bed ought to be in the end *Verbena*-beds, and the white *Verbenas* in the centre, with *Purple King Verbena* round them, which would give a better contrast than the crimson, but the crimson will do.

PEAR TREE UNFRUITFUL—EVERGREEN HEDGE FOR TERRACE (*H.*).—The bloom and spray which you have sent tell why your Pear-tree blossoms never set, though they appear in profusion. The blossom only partially developed, and the spray covered with lichen, proclaim weakness in the tree, arising from poverty in the soil. Remove at once carefully all the top soil down to the first roots from within a circle of six-feet radius from the tree's stem. Replace that soil with some fresh rich loam, and during the drought of summer mulch over the roots and water abundantly. Brush over the stem and main branches with a creamy liquid made of fresh-slaked lime, soot, and water. We would never plant a Holly-hedge as an accompaniment to a terrace of any pretensions, but we should employ Yew or Box—and whichever we used, to be kept as close as the best Brussels carpet in doors. If there is much light stonework about the terrace, Yew is the best to go with it; if not, Box is as cheap and as good as Yew, and you can plant either with four-feet-high plants and any other height up to 10 feet or 12 feet, according to the price you will incur. The distance between the plants—be they Holly, Yew, Box, or Privet—will be according to the sizes of the plants entirely, from 9 inches to 4 feet apart. All hedges ought to consist of only one row, and that row in the middle of the bed prepared for the plants. That bed is the grand secret of all good hedges. Any one can plant, and a child can water, but without a thorough good bed of deeply stirred or trenched soil, no hedge worth a place on a terrace can be raised. The time to plant a Yew-hedge of large plants is early in September; if the plants are under 5 feet, the last of August and the first day of September are equally good, and the twentieth to the twenty-fifth day the best to plant good-sized Holly. But if the ground was quite ready, and the plants near, the first week in June is about as good a season to plant well-rooted Hollies under 6 feet as any in the whole year. The plan's should have 3 feet clear from the turf. Hollies look best if they are carefully cut with a knife instead of shearing them. From your inquiries we would strongly advise you to give up all ideas of a Holly-hedge and take Yew instead.

LEAVES OF SCARLET GERANIUMS SPOTTED (*Salopia*).—We have never before seen this disease of yellow minute spots in *Scarlet Geraniums*. It looks as if from the attacks of some scaly insect. But after planting out the plants will grow out of it; then by taking healthy cuttings and letting the old plants die out, the disease will be easily got rid of.

VERBENAS FOR BEDDING—CINERARIA SOWING (*Inquirer*).—The "best" *Verbena* of any colour depends entirely on the way it is to be used. The best white for you is Mrs. Holford, the best scarlet for your purpose is Robinson's Defiance, and the best purple *Verbena* for every one is *Purple King Cinerarias* for early spring flowering should be sown this week, again in June, and towards the end of July.

STOPPING DIELYTRAS (*Idem*).—These must not be stopped to make the plants dwarf and bushy. What could be the use of having such a common border plant otherwise than as it is? Most people cannot get it strong enough for the only purpose it is intended for—for fine blooming. Cramping it, or keeping it down by any means, makes it only less graceful, less flowering. But if you like to dwarf it, stop it by all means, and at every other joint all through the season. You can even disbud it and make it more compact that way: but we warn every one not to do so who prefers the graceful to the dumpty.

CONCRETE WALKS (*A. P. S.*).—First foundation of stones and brickbats 6 inches deep; then a layer of chalk or lime mixed with stones (one chalk to ten of stones) 3 inches deep, with a rise of 2 inches in the centre: therefore in the centre the layer will be 5 inches deep.

CUTTING IVY (*A. Subcriber, Ireland*).—We prefer doing this in March or April, because then the green shoots soon cover over all the knife or scissor marks. If done earlier, the Ivy presents a dead appearance until the young twigs come, and if not done in autumn or winter a sharp frost is apt to injure it, otherwise Ivy may be cut at any time. But keeping looks in view, we prefer from the middle to the end of April.

VINES FRUITFUL AT POINTS OF SHOOTS (*Idem*).—You must not think of cutting back the shoots which have no blossom to one eye now—that would make matters much worse. If the spur system is to be continued, that must be done in the autumn or winter pruning. But meanwhile these shoots should be allowed to grow until they are 18 inches long, and then be stopped, and kept stopped as they grow in summer; and if thick all laterals may be picked out of them, except two or three at the joints near their junction with the older stem. That will help to give them strength and more organised matter for next season. If these side shoots are trained crosswise from a rafter to rafter instead of up the rafter, they will receive more light and be rendered more fruitful, but then they will give more shade to the plants below. You cannot have it both ways. If the Vines are very strong and not fruitful the roots might be raised, or a young shoot near the base left to grow without stopping for 7 feet or 8 feet. As it grows the side shoots should be shortened to a bud or two, not to check the Vine; but as the young shoot gains strength, remove them altogether as far as the young shoot extends. This young shoot could have all the laterals left, but stopped at the first joint, and stopped at another joint as they grow afterwards, until the wood begins to ripen, when they should be gradually removed. The following year this young shoot would mount to the top of the house, and the lower end would bear. The following year the old stem might be removed.

NECTARING LEAVES CURLING (*Vegetarian*).—Such leaves are apt to be produced on gross or older shoots, and the remedy is to stop such shoots early, so that the strength may be directed into two or more shoots instead of one shoot. Such appearances are also produced in cold wet seasons, the sap collecting in undue amount, owing to the deficiency of heat to carry off the redundant water by perspiration. This often ends in the leaves blistering. Such leaves are best removed, as sound healthy ones often come in their place. When, as in your case, the malady seems constitutional, we should conclude the cause to be the roots growing in a soil too deep, too moist, and too rich. If the trees were lifted carefully, or at least the greater portion of the roots raised in October, and placed within 9 inches of the surface in poor light soil, and mulched with litter to keep the heat in the ground, we believe your trees would be healthy next season.

CATERPILLAR OF GOOSEBERRY SAW-FLY (*H. C. K.*).—Dust them, by means of a dredging-box, with fish powder or white hellebore.

LIQUID MANURES (*Ignoramus*).—For flowers, one bucket of the urine from your cow-house to six or seven buckets of water would be none too weak. Salt may be sprinkled in a solid state over Asparagus-beds once a month, during its period of growth, from April to October. One pound to a square rod would be enough applied thus frequently. Bone manure in powder, may be put in the drills with the seed or round the roots. This powder will not dissolve in water, but superphosphate of lime prepared from bones will. The latter may be used about one ounce to each bucket of water. When you have finished cutting Sea-kale leave the plants entirely uncovered.

GREENHOUSE FOR BEDDING PLANTS (*Thorne*).—The site, aspect south, though shaded after noon, will do well enough for the purpose. Of course you mean to exclude the frost.

CUCUMBERS DISEASED (*H. C. W.*).—The bits of leaves were so dried that we can scarcely make out what is the matter with them, but conclude it to be the spot, and we are sorry to say it; for, once set in, the only remedy we know of is burning the whole, clearing out the whole soil, washing all the frames with sulphur and lime, and beginning afresh. The following will palliate the evil, and may ultimately produce a cure, as it has done with us once or twice, but the trouble is great and the result not certain. Wash the frames or walls with sulphur and lime, remove as much of the surface soil as the roots will permit of, cut off the worst leaves and stems, give extra heat in the way of linings—not to make the bottom heat too high, but to raise the atmospheric temperature as noted in "Doings of the Week," so as to permit of free ventilation during the day and a little at night. Fresh healthy growth may thus be expected; and every bit showing signs of disease must be removed. Sour saturated soil will bring it on in Cucumbers. It happens rarer with Melons, a stagnant atmosphere delights the disease.

GRAPES (*W. E. Butler*).—There is a great difference between the White Sweetwater and the Royal Muscadine. In the former the bunch is very loose, and contains a great many small, undeveloped, and abortive berries among an equal proportion of round, thin, semi-transparent-skinned ones, and the bunch is short, and oblong. In the Royal Muscadine the bunches are long and tapering, and the berries are all equally and well developed. There is a variety of opinions about the Esperione Grape, and we are not in a position to say much about it. It is not impossible that it may prove to be the Frankenthal, which, though sometimes called by the same name, is quite distinct from the Black Hamburgh. The sort you are growing for Esperione seems from your description to be Black Prince. Your Black Hamburghs will not be too heavily cropped with seventeen bunches on them. Let there be only one bunch on a lateral, and thin the bunches well. You will find that when we have made the purchase of the index compulsory, we have always charged 4d. for the Number in which it was issued, but as there is an immense increase in the number of the subscribers to the new form of THE COTTAGE GARDENER, we did not think it fair that they should have to pay for a title of which they did not possess the volume. We shall be pleased to have your experience of orchard-house culture.

ADVICE (*Ignoramus*).—We always have had, and always shall have, information for all classes of gardeners; and when we say *all*, the answer is given to you who require us to be exclusively for one class. Any information you may specially need will be most readily given.

GLADIOLI SEEDLINGS—BULB-POTS (*P. H. Watts, Woodstock, Canada West*).—Plant them out in the border as soon as the spring with you is quite confirmed. Harden them off by degrees for the removal. Take up the bulbs as soon as the foliage has died down in autumn. You may forward them a little under glass in spring preparatory to planting out, though in England we should not do so. Perhaps keeping them in pots of earth, merely excluding frost, would be the better plan even in Canada, turning the whole ball out into the border when spring arrives. Draining-pipes 4 inches diameter will do very well as a rough substitute for bulb-pots. Your other questions are answered in another page.

BEGONIA REX IN BORDERS—**PURPLE ORACH** (*G. B.*).—*Begonia Rex*, an all the strong-growing variegated *Begonias*, will grow as freely as Tom Thumb Geranium out in the open air in most of the sheltered gardens south of London, and very likely all over the kingdom; but none of them must be plunged in pots. Turn them out of the pots with the ball entire, but previously well moistened. The same treatment must be adopted with *Farfugium grande*, which may be planted out as early as the Dahlias, but the *Begonias* not till the weather is settled and is warm in June, and then, the older and stronger the plants are the better they will succeed. The Purple Orach grows from 3 feet to 4 feet high in good rich soil, but does best trained down, and to be constantly stopped and kept from flowering.

SMALL FERN CASE (*E. C.*).—We should have *Cystopteris fragilis* only, with *Hymenophyllum tunbridgense* round it; and we should have the *Hymenophyllum* round the *Adiantum capillus-Veneris* which you have in the other shade. The taller Ferns require the more dwarf to cover the soil beneath them.

VEGETABLE SOIL FOR PEACH TREES (*A Subscriber*).—This, formed of weed and other refuse, will do very well to mix with your poor, sandy soil for a Peach-border; but you should add some loam or clay, and keep the surface mulched. See what Mr. Robson says to-day about the soil for Peach trees.

KIDDEAN SYSTEM OF HEATING.—W. A. will oblige us by fuller details of his mode, and if with illustrative plan or plans the better. We have a letter for him if he will send us his address.

NAME OF PLANT (*T. F.*).—Your plant is *Pedicularis sylvatica*.

FLOWER SHOWS FOR 1861.

- MAY 18th. CRYSTAL PALACE. (Plants, Cut Flowers, and Fruit.) *Sec.*, W. Houghton.
JUNE 5th and 6th. ROYAL HORTICULTURAL SOCIETY. (Plants and Fruit.) *Garden Superintendent*, G. Eyles.
JUNE 12th and 13th. YORK. *Sec.*, J. Wilson.
JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. *Sec.*, E. Carpenter.
JUNE 25th. ROMFORD. (Plants, Flowers, and Fruit.) *Sec.*, Mr. George Griggs, Romford.
JULY 6th. CRYSTAL PALACE. (Rose Show.) *Sec.*, W. Houghton.
JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) *Garden Superintendent*, G. Eyles.
SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) *Sec.*, W. Houghton.
SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.
SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. *Sec.*, E. CARPENTER.
NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.
NOVEMBER 12th and 13th. STONE NEWINGTON CHRYSANTHEMUM SOCIETY. *Sec.*, W. T. Howe.
NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) *Sec.*, W. Houghton.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

- MAY 21st, 22nd, and 23rd. CHESTERFIELD AND SCARSDALE. *Hon. Sec.*, Mr. Thos. P. Wood, jun., Boythorpe House, near Chesterfield. Entries close May 1st.
MAY 22nd and 23rd. BEVERLEY. *Hon. Sec.*, H. Adams. Entries close May 4th.
JUNE 4th, 5th, and 6th. BATH AND WEST OF ENGLAND. *Steward*, S. Pittman, Esq. Entries close May 4th.
JUNE 19th. THORNTON. *Sec.*, Mr. Joseph Richardson. Entries close June 12th.
JUNE 19th, 20th, and 21st. COALBROOKDALE. *Secs.*, J. B. Chune, and Henry Boycroft, Coalbrookdale.
JUNE 25th. ESSEX. *Sec.*, W. R. Emson, Slough House, Halkstead, Essex.
JUNE 29th. DRIFFIELD. *Sec.*, Mr. R. Davison. Entries close June 22nd.
JUNE 29th and 30th. TAUNTON. *Sec.*, Mr. Charles Bailance. Entries close June 14th.
JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. *Sec.*, Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.
AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SNOW. *Sec.*, W. Houghton.
SEPTEMBER 3rd. POCCINGTON (Yorkshire). *Sec.*, Mr. Thomas Grant. Entries close August 26th.
SEPTEMBER 24th. BUNGINGHAM. *Sec.*, R. Taylor, Bridgnorth.
DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. *Sec.*, Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.
DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SNOW. *Sec.*, W. Houghton.

LET FOWLS RISE WHEN THEY PLEASE.

It is not necessary that the great expenses indulged in by some poultry amateurs should be incurred. With poultry, as with animals of a higher order, the things necessary are not much.

Except to find their eggs, if they are wanderers, fowls do not now want as much looking after as they do in the winter. They may be allowed to roost about where they will—in shrubs or trees, or cart-houses, under sheds, and on the rafters of empty barns: they will be the better for it. The nights get shorter and warmer, the earth brings forth food, and they are early risers. It is almost literally with them that "the early bird picks up the worm." There is much food on the grass in the cool of the morning when it is damp with dew, which disappears as the sun gets up. For this reason those who keep their fowls fastened

into their houses at night have much to answer for, because it is essential they should be at liberty the first thing in the morning. "Well," says one, "so they are; gardener lets them out every morning before six." Granted, but in June and July they want to be prowling at half-past three. Nature is a good manager. Fowls following her dictates exert themselves during the freshness of the morning; the heat of the mid-day is for a long siesta.

Except a well-to-do pig that grunts out its satisfaction at having a bellyful and nothing to do, we know no animal that shows more enjoyment than a healthy fowl during the middle hours of a summer's day. It chooses a dry bank, well and thoroughly exposed to the sun, and the dustier the better. If it be a hen, she looks for a small hollow; she lies on her side and sets to work increasing and deepening the hole; when she has partly buried herself she opens her feathers, she covers herself with dust, and then composes herself, lulled by the heat. It would be useless for her to prowl about, the earth is dry and parched; but when the evening approaches she will be out again. Fowls have this desire to dust and bask in common with Game. Pheasants and Partridges do it, and in the middle of the day there is little hope of finding any of them except in sunny places. They feed at daybreak and in the evening.

We have been led to this, because it can no longer be necessary to keep fowls closely shut up, and because it is not only economical that they should find the greater part of their food, but it is also very beneficial to them to do so. It is with them as with ourselves—the hotter the weather the less we are inclined to eat, and the more we long for something of a refreshing nature. They find their fruits and salads in wandering about. The hen may be allowed her liberty with her chickens by day in warm and dry weather, but it is better she should be shut up at night, because, otherwise, she is very apt to drag her chickens about in the cold morning dew, among high grass and weeds, where they perish. While roaming during the day, it is with chickens as with adults—they not only find part of their own food, but that part which is best for them.

HEN BROODY WITHOUT LAYING.

I HAVE a small Bantam hen that about a month ago showed a desire to sit. She had four Dorking eggs given her, and is now the proud mother of two chickens (having turned the other eggs out of the nest). The only remarkable thing is, that the hen has not laid since 1859. She is about four years old.—J. H. T.

[We are always very glad to hear of such things as that you recount. We had some years ago an old East Indian hen which would sit all the year round—in fact, whenever eggs were put under her. She laid seldom, but she did lay sometimes. Are you sure the Bantam has not laid and eaten her eggs? We have been surprised to see the short time in which a hen will devour that she has just laid, and also the cleanly operation she makes of it. We have watched, and ran to the nest, to find no trace of one.]

CANARY BREEDING.

LAST year I purchased a hen rather late in the season, placing her with a cock in a roomy breeding-cage. Almost immediately she built her nest, afterwards sitting almost continuously. Much to my surprise no eggs were laid. After a week or ten days I placed several Bullfinch's eggs under her. She sat them the due time (without laying). Unfortunately they proved addled, though it was not her fault. After this I destroyed the nest and prevented her making another. This year she has built her nest quite a fortnight ago, sitting very irregularly, but no eggs are produced.—A VEXED ONE.

[Take away the hen Canary's nest, wait a week or so and then let her build again, when, perhaps, she will lay; if not, you may give her some eggs of any of the Finches to rear, after which she will build again and lay, unless she is really barren. Barren hens are, however, often useful as nurses, as they may frequently be induced to sit at any time, which is sometimes a great convenience.—B. P. B.]

THE DOTRELL.—We saw the first of this eccentric summer bird on the last day of April. Epicures will hail their arrival. We shall be glad of any information respecting these most interesting birds.

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 71.)

10.—THE BRAMBLEFINCH (*Fringilla Montifringilla*.)

German, Bergfink or Tannenfink,
French, Pinçon d'Ardenne, or Pinçon Royal.

THE Bramblefinch, known also by the names of Brambling, Mountainfinch, Beechfinch, and Firfinch, is a winter visitor to this country. Like the Siskin, it is very irregular in its visits.

In size and shape they much resemble the Chaffinch, but are slightly stouter, and stand rather higher on the legs.

In plumage they are very handsome birds. The beak is pointed and yellowish in colour, with a brown tip; in summer it changes to a bluish shade. The irides are brown, and the feet flesh-coloured.

In the male the head is a bright black, with bluish and purple reflections; the sides of the breast, lesser wing-coverts, and under wing-feathers, orange buff; the feathers of the back have broad, russet brown edges; the quill-feathers of the wings and tail are black; the primary wing-feathers have a little, and the secondaries much white at the base, which form a white mark on the wings, and give the bird a very dappled appearance when it flies. The larger wing-coverts are black, with orange tips; the rump and under tail-coverts, white. In autumn after the moult, the plumage is much duller on account of the feathers, particularly of the head being edged or bordered with brown; but, during the winter, these ends are worn off, and by the spring the bird assumes his handsomest, or summer dress. The female is much duller in plumage; the feathers of the head and back are fringed with wide edges of brown, which give a much quieter tone to her whole plumage, and by which she is easily distinguished.

They breed in the north of Europe, and I have not heard of their nest having been found in this country. Bechstein says, "They make their nests on the thick firs and pines, of the moss that grows on those trees, and line it with hair; the hen lays five yellowish-spotted eggs, and the young ones are reared on insects." Their food consists of insects like that of the Chaffinches, and of the seeds of firs and pines, and they are very partial to beechnut; they also frequent the stubbles and eat other seeds. Mr. Seales, an agriculturist of Beecham, in the county of Norfolk, considers them of great service to his land, as they devoured in great abundance the seeds of the knot grass (*Polygonum aviculare*).

Although very handsome birds and easily tamed, their song is but poor, and they are considered quarrelsome in an aviary with other birds, but I have kept them in a room with many other birds without any such inconvenience. Their food may consist of canary seed, oats, millet, and occasionally a few insects, as mealworms, earwigs, &c.

Bechstein remarks, that if they have much hempseed they frequently become blind, and the head swells and causes death; he also states that they are easily trained to fly out and in at the window, and if allowed to roam in the room, will eat anything that comes to table.

Their call, *yack, yack, quark*, is very loud; and I have found them very restless at night in the migratory season, when they would often start from their perch, uttering a suppressed scream, and beat their heads against the top of the cage, causing a panic among the birds in the neighbouring cages.

On the Continent, pied, and even white specimens, have occasionally been met with.

I have endeavoured to breed from them with the Canary, but without success. Bechstein however, informs us that the hen Bramblefinch and cock Chaffinch produce very handsome Mules.—B. P. BRENT.

(To be continued.)

DECREASE OF STARLINGS AND OTHER BIRDS.—In the northern part of Hampshire, I have noticed a great falling off in these birds. I have a field of about four acres in front of my house which is a great resort for them, and notorious for the large flocks that frequent it. We have all noticed their disappearance since the frost. Blackbirds, Thrushes, and Bullfinches, are also scarce in the garden. I believe Sparrows are like flies, the more you kill the more you have. Will some of your readers tell us when first they heard the Nightingale and Cuckoo?—H. R.

TREATMENT OF PARROTS AND COCKATOOS.

HAVING kept and attentively observed the habits of Parrots and Cockatoos for many years, I cannot forbear noticing and lamenting the privations that unhappy family of birds must endure at the hands of "W. T." and his friends. No doubt they can exist on "sopped bread and hempseed;" so, too, can "W. T." on boiled mutton and bread; but both would be infinitely benefited by a change of diet. "W. T." would find his boiled mutton very wearisome after a month's experience.

Amongst my feathered pets is Coco (a grey Parrot) which was given me from the nest in Africa, looking at the time very like an exaggerated powder-puff. I have had him now many years, and his beauty and intelligence are remarkable. I ascribe his perfect health and brilliant plumage to the great variety of food allowed him; of course, the staple is sopped bread, but we give him fruit of all sorts—nuts and walnuts, of which he is particularly fond, well-picked bones, vegetables—in fact I deny him nothing but salt and fat; water every day, which he calls for when thirsty under the name of "milk," and never ceases reiterating, "Miss Ellen, milk, poor Coco, Miss Ellen milk," till attended to.

I think if "W. T." could see Coco's delight in bathing he would give his own bird a similar treat immediately. Coco goes through the most absurd antics of joy, dances round and round the basin (of tepid water) dips his head in, opens his mouth, and dabbles his tongue in the water, puts his head down quite close to the water, telling it in a confidential tone some of the eighty-seven sentences he has acquired, and finally goes through a prodigious splashing.

While on the subject of Parrots, I may mention a remedy given me by a dealer in them, for plucking out their feathers: it is to sprinkle the birds gently (so as not to frighten them) with a weak solution of alum in water; it soothes the irritation of skin which causes the habit, and also renders the taste of the feathers unpleasant to the bird.—E. V.

BEE-HIVES AND THEIR APPURTENANCES.

(Continued from page 109.)

HIVE-BOARDS.—Nine are of yellow pine, $1\frac{1}{2}$ inch thick, of the form seen in sketch (figs. 10 and 11), the square formed

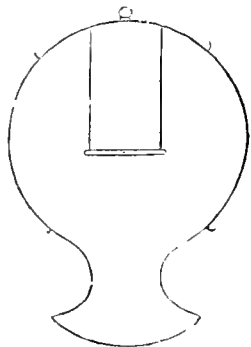


Fig. 10.

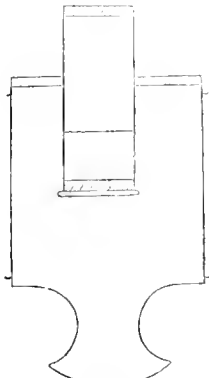


Fig. 11.

16 inches, the round 18 inches in diameter. The unusual form of landing-board I devised for two reasons, to save the many tired foragers who might otherwise miss a narrow board and fall a prey to the lurking toad, and also to assist in keeping the thick thatch snug. It is always better to be well bevelled from the entrance to the front, to run off the moisture, and many a life may be saved on a wet, mild day, or a dewy morning, by its being stripped down in addition, into little channels with a fine gouge. The bees getting on their backs are by this means enabled to right themselves. The exact dimensions of the landing-board are $8\frac{1}{4}$ inches in length at the centre from the square, $10\frac{1}{2}$ inches point to point, $1\frac{1}{8}$ inch of a sweep at centre from a straight line between the points, and at the centre 6 inches wide. A portion 10 inches by $5\frac{1}{2}$ inches is cut out, if done neatly with a very fine saw, it may serve afterwards to work as a solid drawer, if not another bit is easily made to fit. A little brass knob is behind to draw it out by. A half-inch board 16 inches

square nailed on below across the grain of wood, serves the double purpose of preventing warping and a bottom to rest the feeding-trough upon. The outer edge of this half-inch board to be bevelled off for appearance's sake. This will be found a useful

means of supplying food as already mentioned. The narrow thin strip of wood at the top of the drawer as seen in the sketch, is to prevent dead bees or any refuse falling in when using the drawer, and so hinder its shutting close. On the bottom is nailed four pieces 1 inch square, mitred at the corners, leaving a central square of 9 inches as a frame to fit on a similar-sized piece nailed on the top of the pedestal. A pair of two-inch iron buttons or bars on the back part of the frame and one in front, serve to keep it in its place on the pedestal. The hive can be readily weighed without risk as often as the bee-keeper has a mind, by turning back the buttons, running in the sliding door, whenever the inmates are housed; and by means of the little iron hooks at the corners of the board, the hive is elevated as seen in sketch (fig. 5), the weight noted, the hive replaced, and the entrance opened without the bees ever being aware that there has "Been a chiel amang them taking notes."

SHADES.—To ward off the prejudicial effects of the winter's sun during a fall of snow or otherwise, on the thickness of the front of the landing-board drive a little bolt with a circular eye, a stout wire bent at one end to fix into it, and after running straight out for a foot or so, turned up perpendicularly. On this a square of wood rounded at the top with two little eye bolts behind works

up and down and about, so to throw the front of the hive into the shade. Small holes in this upright will admit a sprig to fit in any position, of course to be removed in spring.

PEDESTALS.—The authorities all rightly agree that these should be single, but only specify two materials, wood and iron, for their construction. The first, though the best oak charred and tarred, decays near the surface, and its downcome is only a question of time, the tragical consequences of which any apiarian can anticipate. The iron is liable to rust, and must be kept painted, and is, above all, too expensive for general use. I, therefore, devised for my own apiary a pedestal free from all these disadvantages. What I employ for the purpose are, *glazed fireclay faucet pipes*: they are strong, most durable, not affected by damp, being always glitteringly clean, require no paint, and, of course, do not rust, are too smooth for a mouse's foot, and, to crown all, so economical as to justify their universal adoption, the three-inch size costing 8d., and the four-inch 9d., in single pipes. They make such capital pedestals as entitle them to a place in the "Bee-keeper's Manual," or "honourable mention" by any apiarian society. I adapt them as follows:—Suppose we take the four-inch size, dress a circular bung 4 inches in diameter by 1 foot long (less length might do), of thoroughly seasoned wood: before fitting it tightly into the upper end of the pipe give it a good coating with white lead, dress the top smoothly with a hand-plane, prepare a board $5\frac{1}{2}$ inches broad, having a thickness of three-eighths of an inch behind, dressed to a sharp edge in front, cut out a circle $5\frac{1}{2}$ inches in diameter, and nail on the

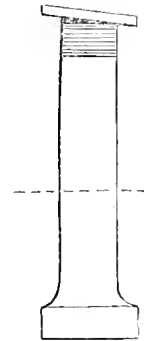
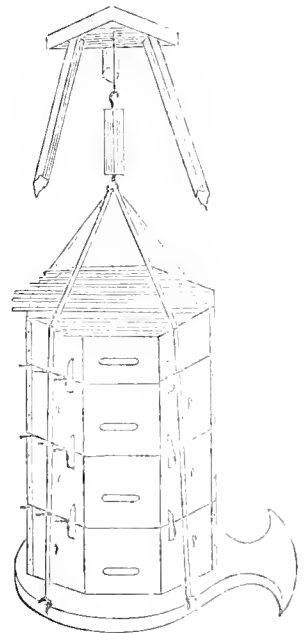


Fig. 5.

top of the bung, this gives the bevel for the hive-board. On the top of this fix with extra stout nails a nine-inch square of wood inch-dressed, on which the floor-board is attached with buttons as already mentioned. When nailing it is safer to place a piece of wood up through the post to the ground to prevent its displacement. The three-inch size has a lighter appearance and is 30 inches long. The four-inch I think preferable, being 38 inches long, and the faucet end on this size sunk into the ground helps to steady the pipe (see fig. 5). A hole is to be opened to receive it, the earth put in gradually and well firmed as you proceed fixes it immovably, leaving 20 inches or so above the surface.

WATER TROUGHS are useful particularly in spring. Mine are of hewn stone 16 inches by 7½ inches outside, by 2 inches deep, leaving a rim 1 inch sunk into the earth, 1 inch above the surface. I used to place pebbles in the water, but observing bees greedily drinking at a ditch one day, not directly from the water, but through the medium of the moss upon the stones, took the hint and filled my troughs with nice specimens. By filling the trough every morning with water the moss grows and has a pretty appearance. Should blackbirds abound it is better preserved by a bit of net. A ready cheap substitute are the little oval troughs of fireclay used for fowls' drink, they are 16 inches by 7 inches, and cost 1s.—**A RENFREWSHIRE BEE-KEEPER.**

(To be continued.)

WINTERING BEES IN CANADA WEST.

"APRIL 10th bees went abroad for the first time and returned with pollen. 11th found hepaticas in bloom in the woods. This is my beginning, or rather second attempt. The first was on January 15th. I went for a hive, there was an icicle inside, but the bees were all alive and very active, and I placed the hive on a cloth at once and drove home. This box was quite water-tight. After a few days we had a thaw, followed by a severe frost; and shortly after all my bees were dead. There were plenty of comb and honey; box and all could not have weighed less than 30 lbs. or 40 lbs. Those now at work are in a box with three holes in the top, one half way up, besides the entrance-hole, and was one of some fourteen or fifteen boxes quite exposed; there is one or two in the apiary with knot-holes, and a fractured hole as it were dented out, and had been so for some years; over the top hole a small inverted box, not sealed down, and no cover overhead, or next to none, being so high that any rain or drift must find them out; though, perhaps, the top box would prevent any getting in at the top.

In another apiary, April 12th, the bee-keeper had buried or rather pitted two hives, and gave the following account:—Those exposed had consumed on the average 18 lbs. during the winter, those pitted 6 lbs. His method was as follows:—on the surface of the soil he placed some clean straw, on this a board on which to put his hives, building a roof over of boards, and closing the gable ends in the same way; then put on 10 inches of soil, but no moss or other packing between the boards and the hives. He intends to follow this plan with all late or badly-provided swarms. I am aware this is no new method; but from the poor account of bees in England, fancied they could devise some plan there to keep them at a low temperature, and sufficiently dry."—**F. H. WATTS, Woodstock, Canada West.**

[We have recently inspected a hive, the inhabitants of which perished during the winter (which even here has been no bad imitation of a Canadian one) under probably similar circumstances to those narrated by our correspondent. The hive was made of wood 1½ inch thick throughout, and sheltered from the weather by a loose covering of sheet zinc; it was perfectly air-tight, and contained fully 10 lbs. of sealed honey in good condition, so that starvation was out of the question. The bees were found clustered together between the combs, and were saturated with moisture. As North American winters are somewhat unusual in England, we must refer to American apirians for an explanation, which is given by Mr. Langstroth as follows:—"In March, 1856, I lost some of my best colonies under the following circumstances: the winter had been intensely cold, and the hives having no upward ventilation were filled with frost, and in some instances the ice on their glass sides was nearly a quarter of an inch thick. A few days of mild weather, in which the frost began to thaw, were followed by a temperature below zero, accompanied by furious winds; and in many of the hives the bees, which were still wet from the thaw, were frozen together in an almost solid mass."

Mr. Quinby explains the formation of icicles in a bee-hive in the following manner:—"If we examine the interior of a hive containing a medium-sized swarm on the first severely cold morning, except in the immediate vicinity of the bees we shall find the combs and sides of the hive covered with a white frost. In the middle of the day, or as soon as the temperature is slightly raised, this begins to melt, first next to the bees, then at the sides. A succession of cold nights will prevent the evaporation of this moisture; and this process of freezing and thawing, at the end of a week or two will form icicles, sometimes as large as a man's finger, attached to the combs and the sides of the hives."

"Upward ventilation" by means of orifices in or near the top of the hive is Mr. Langstroth's remedy; and this accounts for the fact which appears to puzzle our correspondent—viz., that hives ventilated by means of "knot-holes," &c, escaped the calamity which befel his own "water-tight" box.

Mr. Quinby winters his bees by inverting the hives in a dark room, whilst Mr. Langstroth gives full particulars of a German mode of wintering bees in what he calls a "bee-clamp," which is almost identical with the one described by our correspondent. Either of these methods may probably be followed with advantage during the severe winters of Canada and other northern countries, but will seldom be found necessary in our own more genial climate. See "To Correspondents" for answers to other queries.]

BOTTLE-FEEDING FOR BEES.

HAVING given fully 2 cwt. of food to my bees during last autumn by means of the bottle, I cannot concur in "A RENFREWSHIRE BEE-KEEPER'S" statement as to its being "a slow process." I used pint bottles with mouths of the size of a shilling, and found that every stock would appropriate two bottlefuls in twenty-four hours. If this rate of progress be not quick enough for our go-a-head Northern friends, I would suggest the use of Lazenby's wide-mouthed pickle-bottles, and feeding through a two-inch aperture. These bottles hold about a pint, and a strong colony would probably empty one in three or four hours, so that half-a-dozen pounds a-day might readily be administered to each hive.

Whilst on this subject, I may point out an error into which many others besides your correspondent have fallen with respect to the "constant dropping" of food from an inverted bottle. This supposed fact is wholly imaginary, as may readily be proved by experiment. Even pure water in a wide-mouthed pickle-bottle tied down with a piece of cap-net, will remain perfectly suspended without a drop falling after being placed in an inverted position.—**A DEVONSHIRE BEE-KEEPER.**

VARIETIES.

THE RASPBERRY JAM TREE;

OR STINKING ACACIA (OF CENTRAL AND WESTERN AUSTRALIA) AND THE GUM WATTLE, OR FRAGRANT ACACIA OF SOUTH AUSTRALIA.

In my journey into Central Australia (starting from Adelaide), I noticed a species of Acacia growing in the dry, stony beds of some of the creeks (lat. 31° south and long. 141° east), the blossom of which yielded such a putrescent odour that it has received the name of the "stinking Acacia."

The leaves yielded no sensible smell when fresh, but having cut down a few small branches, and placed them in the shade, I noticed that in forty-eight hours they gave out a strong, unpleasant odour, something like rotten cabbage. I had some branches in my tent, in which the temperature varied from 100° to 110° Fahr., and as at the same time the air was intensely dry it would appear that the odour is not easily eliminated.

A singular contrast was, however, exhibited in the wood, which, instead of partaking of the unpleasant smell of the blossoms or the leaves, was agreeably fragrant.

On my return to the settlements I found that this species of Acacia, though unknown in South Australia, Melbourne, or New South Wales, was known in Western Australia as the "Raspberry Jam Acacia," from some supposed resemblance in the fragrance of the wood to the odour of that well-known preserve. The wood has obtained the colonial name of "Raspberry Jam Wood," and the specimens from the Swan were very superior in fragrance to those from Central Australia. It is of a dark colour, very similar in appearance to Rosewood, very heavy and sunk in

water like a stone, and so hard when dry as to turn the edge of a saw or chisel.

The gum is probably, due to the presence of a small portion of oil, as is the case with sandal wood, only not so *richerché*, and it remains yet to be seen if it can be turned to profitable account by the perfumer. Let us suppose that essential oil of "Raspberry Jam Wood," or some other extract could be obtained, it would not be a particularly pleasant perfume; but that does not militate against it, for the same may be said of musk, ambgris, and many others when pure.

The contrast between the odour of the blossom of the Raspberry Jam Acacia and the blossom of the well-known Gum Wattle *Acacia decurrens*, is very remarkable. The former is sickly and almost as fragrant as an old oil-bag stump; the latter is most agreeable and delicious—yes, it is most sweet. Many of the valleys to the South of Adelaide every year at the season of blossoming returns, are redolent with the exquisite fragrance. This fragrance is, however, entirely in the blossoms, for the wood and leaves are scentless.

The Wattle or fragrant Acacia has been destroyed in nearly all the settled districts for the sake of the bark. That it might be profitably cultivated is beyond a doubt. 1st. It yields gail berries of great utility in many branches of commerce. 2nd. A most valuable perfume. 3rd. A gum similar to gum arabic. 4th. The bark is much valued by the tanner. 5th. It might be cultivated on land which also could be used for pasturage. 6th. The seed might be turned to some account. The seed is in pods similar to peas. Cockatoos are very fond of them. I noticed flocks of the beautiful rose-breasted cockatoos feeding off the seeds of the Raspberry Jam Acacia in Central Australia, and the white cockatoos in South Australia used to come in great numbers as regular as the season, and gorge themselves with the seeds of the Gum Wattle. I used to vary my dinner, which, from there being no fresh meat to be had, was chiefly of salt pork, with a roast of these fellows; but I cannot say much in their favour, even with the recommendation of an Australian appetite.

The gum of the Fragrant Acacia is used as an article of food by the aborigines. I have used it myself, and advised its use by others when hard pressed, and found it extremely nutritious. It requires some little cooking and bolting to get it down; for otherwise you may get as hungry while eating as if eating walnuts. The natives would eat 2 lbs. to 3 lbs. at a sitting.

The gum is the most valuable product, considered as an article of commerce. Some that I sent to England as a speculation realised £60 per ton, and a portion £63 per ton. The bark realised £15 per ton. My agent, however, advised me that those prices could not be maintained. As the gum is four times the value of the bark, and is yielded annually, while the bark can only be obtained once (for the tree dies), it reminds one of the fable of killing the goose. A party of men and boys out "barking" would destroy a belt of Wattles a mile in length in a week, and they make no distinction as to whether they are growing on Crown or purchased land, so long as the owner is not located on it.

The gum is used by manufacturers to give an apparent thickness and superior quality to their goods; also by confectioners and many others. A wholesale stay-maker told me that it cost him £150 per annum for gum arabic (which, after all, is chiefly obtained from Africa) merely to thicken and finish ladies' stays. The Australian savage eats the gum fresh and pure. Young England consumes it a varnish or polish on his gingerbread and buns.—LOUIS PIESSE, *Calcutta*.

RIMMEL'S PERFUME VAPOURISER.—There are many contrivances in use for fumigating and perfuming private apartments, sick-chambers, and public meeting-rooms; and many of them are not only in some instances offensive, but positively injurious. There is generally a coarseness and crudeness in the composition of all perfumes emanating from direct combustion, and hence the burning of pastilles, resins, and woods, is accompanied in many cases with a heavy, dull fragrance, which is both oppressive and disagreeable to many. In the apparatus before us, and of which we furnish the annexed representation, there is no such objection. Mr. Rimmel, the eminent perfumer, has here invented an appliance which most effectually charges the atmosphere of the largest apartment with any perfume that may be required, and in such a way as to be at once agreeable and refreshing. The apparatus consists of a bronzed urn raised on a tripod stand, and with a spirit lamp beneath it. In the inside is a vessel containing the perfume which it is intended

shall be used, and this vessel is placed over a water-bath, the steam from which, passing through a curved tube in the perfume vessel over it, distributes the perfume in vapour from the top of



the urn, and it is then diffused throughout the apartment. We have used this apparatus, and can speak from experience of the simplicity of its action, and of the delightfulness of its operation. We can imagine how refreshing in any apartment, whether it be a ball-room, or a chamber of sickness, would be the pungent fragrance of Rimmel's vinegar, emitted by the Perfume Vapouriser. It is not only a useful article, but an ornamental one, and might well find a place in any room of any residence.

EVENTS OF THE SEASON.—We saw a young Woodcock, half grown, on Thursday last. We hear of young Blackbirds, and the Rooks are very strong.—B.

OUR LETTER BOX.

COLDS IN POULTRY (J. G. P.).—We recommend you to use stimulants freely. There will always be violent colds while we have easterly winds by day, and hard frosts every night and morning. Acting on the old principle that prevention is better than cure, we are careful at these seasons to have the bottoms of beer, and drainings of wineglasses carefully saved in order to soak therein all the crumbs and crusts. These, with a little addition, enable us to give a good stimulating meal twice every day to those that seem most to require it.

GAPES IN CHICKENS (A Devonshire Subscriber).—No easily applied remedy is known. We have often recommended a little sweet oil to be injected upon the worms by means of a small syringe. The disease generally occurs in fowls of weakly constitutions, and as a preventive chalybeates are effective. A small quantity of green vitriol (sulphate of iron) dissolved in their water is beneficial.

GOLDEN-SPANGLED HAMBURG EGGS (F. S.).—The egg shells being "very thin," is the cause of their being broken, and, then, on wadding the hens partially eat them. It is the way to teach them to do so. We suspect your hens are too well fed. Give them a dessert-spoonful of castor oil, less stimulating food, and less food of any kind; also, have some limy rubbish thrown down where they can have access to it freely.

TURBITS WITH CRESTS (G. Winchester).—You must have overlooked the reply to Mr. Oates, in last week's *JOURNAL OF HORTICULTURE*. I prefer the head of a Turbit without either turn crown or point, as I consider it detracts from the peculiar form of the head. By a reference to all the older works on Pigeons, it will be found that no mention is made of the turn crown by the writers, and their plates show them smooth-headed. I fancy the crest has been introduced by the Germans, who add it to the Barb, Fantail, Powder, Tumbler, and even the Carrier; but such addition is not in accordance with our notions of purity of breed.—B. P. BRENT.

GREY PARROT SICK (Caroline).—Change its food. Omit hempseed and bones; continue the sopped bread; give it nuts; and let it have water and a tepid bath daily if it will accept it voluntarily. Some water slightly warmed in a soap plate is sufficient.

RABBITS (A New Subscriber).—If you buy our No. 642, you will find how to make an enclosure; and in the whole of our last volume there is information desirable for you to possess as to their management. Any kind will thrive in such an enclosure, so you must be guided by whether you require them for their flesh or their fur. The best of flooring for a hen-house is gravel rammed hard, and covered 3 inches deep with sand. Bricks are the worst of flooring for a hen-house.

WEEKLY CALENDAR.

WEATHER NEAR LONDON IN 1860.

Day of Month.	Day of Week.	MAY 21—27, 1861.	Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets.	Moon's Age.	Clock after Sun.	Day of Year.
				deg. deg.			m. h.	m. h.	m. h.		m. s.	
21	Tu	WHIT TUESDAY.	30.312—30.298	75—58	E.	—	2 44	51 47	38 1	12	3 41	141
22	W	EMBER WEEK.	30.266—30.034	74—38	S.W.	—	1 4	32 7	19 2	13	3 37	142
23	Th	Sun's declin. 20° 38' N.	30.017—29.820	75—47	S.W.	—	111	34 7	48 2	14	3 32	143
24	F	QUEEN VICTORIA BORN, 1819.	29.977—29.932	75—40	S.W.	—	58	3 55	7 rises	15	3 27	144
25	S	PRINCESS HELENA BORN, 1846.	29.953—29.609	67—50	S.W.	.04	57	3 55	6 a 10	16	3 22	145
26	Sun	TRINITY SUNDAY.	29.465—29.336	66—40	S.W.	.03	56	3 58	47 10	17	3 16	146
27	M	KING OF HANOVER BORN, 1819.	29.751—29.657	62—43	N.W.	.30	55	3 59	29 11	18	3	147

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 67° and 44.3° respectively. The greatest heat, 82°, occurred on the 26th in 1853; and the lowest cold, 29°, on the 25th in 1839. During the period 139 days were fine, and on 99 rain fell.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

Make your home beautiful—bring to it flowers.

Plant them around you to bud and to bloom;

Let them give life to your loneliest hours.

Let them bring light to enliven your gloom.

Make your *own world*—one that never has sorrowed—

Of music, and sunshine, and glad summer in.

A *home world*, whose forehead care never has furrowed.

And whose cheek of bright beauty shall ever be fair.

Make your home beautiful—gather the Roses

That board up the sun-shine with exquisite art;

Perchance they may p'nr. as your darkest day closes,

That soft summer sunshine down into your heart:

If you can do so—oh! make it an Eden

Of beauty and gladness—remember 'tis wise;

'Twill teach you to long for that home you are needing,

That heaven of beauty beyond the blue skies!

Make your home beautiful—sure 'tis a duty—

Call up your little ones—teach them to walk

Hand in hand with the wondering Angel of Beauty—

Encourage their spirits with Nature to talk.

Gather them round you, and let them be learning

Lessons that drop from the delicate wings

Of the bird and the butterfly—ever returning

To Him who has made all these beautiful things.

INTRODUCTORY CHAPTER.



WE were reading the other day of the wide-spread beauty of this grand old earth, the wonders of the starry skies, the courses of the winds and the science of the fleeting clouds. There lies the ocean with its forest growth of sea-weeds, its wonderful streams and currents, and its deep blue waves. And there are, again, the strange old relics of ages past, wonderful and strange to look upon and to read about—the delicate thin shells, broken by a touch, and yet preserved in stony dress to unveil to us now the life of those far-off years.

Thinking of all these things, and of all the living wonders and living beauties that surround us in the world we live in, one pauses, and the thoughts arise—What did such beauty come for? Surely such gifts must bring some duties? Is Beauty truly a shadow, a trace of the great Creator who alone is perfect Beauty? Are we, poor little crawling insects of a day, intended here to learn to know the better and the more to love the shadow of that Beauty, which, when our wings have at last come to us, the remaining eternity will perchance be spent in worshipping and loving?

But by what little tiny ways we have to learn these beautiful great lessons! It would seem ridiculous if it were not so true. But as it is, one's mind goes on quite naturally to think how a little more of this abundant beauty could best be brought into our English homes: for surely anything is a blessing by which we may make

them brighter. How is it, one wonders, that England beyond all other lands should so abound in gardens? Flower-grown walls and bowery green trees, waving Lilacs and Laburnum tresses, tasselled Larches and ever-green shrubs, throwing such a pleasant shade about her country homes.

Perhaps it just is that flowers *are* such homely things, that English hearts are sure to love them, and English homes to have them; and indeed I dare say that their pure sweet ministrings, the memories they recall, and the thoughts they bring, *do* help in no small degree to make homes what they are.

But flowers are such joyous things. We want them more—much more. We want them to come and bring their sweet fresh brightness with them into many more rooms, even in crowded towns, for peace and gladness are so much wanted there; and though both joy and sorrow lead to heaven, joy is yet surely the sweetest path to go by.

And so it was that I began to think how strange it was that there should be everywhere so much beauty scattered all around us, and yet that often in the very heart of home we should so little find that beauty and that brightness which lovely flowers may give: in the sitting-room, for instance, or the boudoir, or the library, or—it's no use my trying to follow out where "*the den*" may be: everybody knows which is their own home's pleasant room; and I put it to their conscience. *Has* it many flowers? and *are* those flowers artistically arranged?

"Yes," says some one, "the girls do it very well. Flowers always do look nice, you know. Besides, I don't believe there is much arranging. I never see them look nicer than just slipped into the basket as they first come in."

I wonder how many have noticed this to be a fact?

The flowers are actually more artistic in their rough effect than they are afterwards when three of the young ladies have worked for an hour at arranging them in their vases.

I think it is, that in the basket they are roughly grouped in masses as they are gathered. In the vases quantities are mixed up—different and inharmonious colours, and mutually dulling shades thrown all together, making a sadly broken and even dingy whole.

At any rate, it is quite clear that while French bouquets and German wreaths are so very charming—while there is not a toilette without its appropriate flower *parure*, so very far lovelier than jewels for the young—while there is no family fête in Germany without its graceful door wreaths and its garlanded picture frames and coronals of flowers—while in Russia the custom of flower-decked tables has reigned till at last it has taken the very English "*mahogany*" by storm—all this time what in-door floral fashion have the English set?

I know their gardens are lovely and their homes loaded with the sweetest flowers; but I really hope it is not with them as with those people who are so fond of dogs in their proper places.

So now the Editors of this Journal, having for a long time taught the world what to grow and how to set about it, intend also to give a lesson on how to manage and arrange what has been fairly grown.

The same rules apply to most things. The "dinner Russe" is, perhaps, just now most interesting—a painful subject too, considering its expense and its fragile material, so very frail and fleeting.

But, what a delusion it is to fancy that so many flowers are wanted! A good many are, of course, on a good-sized table; but I wonder how many flowers in each group are used which actually make more flowers needful instead of themselves assisting to fill up!

This sounds very odd and strange I dare say; but it really is a fact, that the fewer colours and the fewer shades there are, the fewer are the flowers which will fill the vase.

And then, again, in mixed flowers such very common little things come in, for it is an expensive mistake to fancy so many flowers and such grand kinds are wanted. For the hair, too, and for the dress, how well I remember those charming simple little *gracieuses* wreaths—Ivy, or evergreen Rose leaves, or Myrtle, and beautiful dark or silvered foliage, a few Snowdrops, or some drooping Deutzia—that little flower like a delicate white Ribes, a few pale blue Harebells, single Hepaticas, Scillas, or bells of waxen Hyacinths, Pansies again, and Roses, Azaleas amongst the fairest, and the exquisite Chinese Honeysuckle, and little sprays of Lilac.

I need not, however, say any more, for this is only the introduction, and if I fairly begin I shall never stop.

Yet, before proceeding to more precise directions and particulars, I must illustrate what I have been saying by

A BOUQUET DESIGN FOR MAY.

It may seem premature to give a design before one has yet hardly begun to explain the plan of working. But one can easily choose a very simple specimen, and this one I think most persons could manage well. I saw one day a very lovely design; it was entirely formed of Violets—double white and purple, made up with a few green leaves arranged in the outer circle.

This is certainly rather sombre, but still I may describe it, because by substituting brighter flowers for the white and purple Violets it may easily be made gay.

Whatever flowers are used should be, however, *small*. Hyacinth bells, for instance, mounted singly on stalks of wire, would do very nicely. Hepaticas and white Violets would answer beautifully, and so would double Peach and double Cherry blossoms: these being, perhaps, the very best of all.

It is necessary to be very exact about the shape and flatness. To effect this a tin funnel without a tube—or a card formed into such a shape—is very useful. A stiff bushy piece of green should be placed in the centre of the circle, the top being as flat as possible, so as to be just level with the lip of the funnel, and the stalk being long and firm.

Other pieces of green should now be arranged round this, keeping them very flat, and binding each one down to the first by a long piece of strong white wool. The leaves of sweet-scented Geranium, Myrtle, Lily of the Valley, and Scarlet Geranium especially, do excellently for filling up this space, just as if one was making a common green nosegay.

If small round flowers are to be used entirely, the foliage should be also of the smallest and neatest kind.

Having filled the frame with green, the flowers which have been till the last moment kept in water in the dark should be mounted on stalks, which need not be very stiff if wire is used in mounting, only it is necessary to be careful that it does not cut through the flower-stems.

For the actual design that which comes from the outside into a point at the centre looks very well. I think six points are, perhaps, the best. Six wedges—that is to

say, pointing towards the middle, which looks extremely well filled by a fine Camellia or Azalea; but if it is not the same flower as that which composes the bouquet generally, it must be a perfect match in colour, and being alone it should be in itself a good and well-shaped flower. In this place a white Rose would do well.

The lines must be very exactly kept, and then when the flowers are all arranged, and tightly bound together, the whole should have a frill of white Deutzia, or Lilies of the Valley with Fern leaves or some other pretty and not too fragile foliage.

A bouquet so made will keep fresh for a long time, especially if it is protected from cold and draughts of air.—E.

(To be continued.)

SPRING FLOWERS AND BEDDING PLANTS.

WHEN I asserted, very recently, that the best spring flower for beds, rounds or ribbons, among all the races of the Primrose family is the Yellow Polyanthus "Good Graciously," I ought to have said as I meant, only the best yellow kind; for there is another Polyanthus that must come before it, not in merit, perhaps, but in right of the principle of edging beds of strong colours with neutral colour of the greatest force, as with white or whitish variegated-leaved plants, or low kinds with white flowers. We all know these take the first turn round a bed, or along the front of a ribbon line, and no one disputes the priority, even if he does not admit the necessity for it. A strong yellow flower, on the other hand, is objected to for front work by the great patrons of the present planting system: therefore it is that this Polyanthus will never reach the first place on a spring ribbon, for there is a white Polyanthus equally good, if not better, to come first; as I do not expect to be able to get a real scarlet Polyanthus or Primrose quite free from spots, the second place, or row, and must of necessity reserve for it to cut the white from the yellow Polyanthus. None of the three have clean clear colours. The eye of the first two is much alike: therefore, whatever the eye of the third or scarlet is to be, that kind must take the middle distance; and so "Good Graciously" is to be third on the list after all. Even supposing the three were of equal merit, I cannot push my seedling farther than the third best place in this class of flowers.

In truth, till I had seen eleven other kinds of yellow Polyanthus and one kind of yellow Primrose, I could not say exactly in which row to place the yellow. I have all these now in my own garden, thanks to the donors. I passed my word that Punch Geranium and Shrubland Rose Petunia would be out of cultivation before "Good Graciously" Polyanthus, and I took no merit for raising it, as I distinctly said; and knowing that self praise is no recommendation, when I praise myself, or my doings and sayings, or my way of thinking, I do so for the good of my readers. My reward is, the more readers I make: therefore I study to please and instruct the greatest numbers. But when I differ from a reader in matters of taste, as between two or more kinds of plants, or more ways than one of disposing of them, I never hold an argument on taste, nor enter upon logic to prove who is right and who is wrong about fashions and fancy plants; and that is an answer to a gentleman who writes about me and prefers a Cowslip to the best yellow Polyanthus.

Dr. Herbert in the "Journal of the Horticultural Society," left us on record (Vol. 1847, page 96), that he considered "the natural forms of *Fuchsia virgata*, *gracilis*, *globosa*, and discolour so superior to the mixed shapes produced by gardeners, that he had been unwilling to deteriorate them by intermixture. He was the best cross-breeder that England yet produced. The best cross-breeder from among the Scottish people is Isaac Anderson Henry, Esq., of Edinburgh, or near it; and he says, this same month of May, that "he was never so much in love with variegated foliage as to seek to promote or preserve it much in any thing." But the fashion of this world will not stop to ask what an English or Scotch cross-breeder may think of this or that style of plant, or if a wilding is preferable to a cross, or a cross to a natural sport; and I am sorry to confess that I, too, go too much after the fashion of this world in fancy dress, and dressing, both in-doors and out, up-stairs and down. I always persuade the rising generation of gardeners to avoid strife and wrangling as much as possible, and to live in good will and good fellowship with all their kind and its varieties, and in my turn I endeavour, as much as in me lies, to set them the example.

From this day it is quite safe to remove all kinds of *spring Crocuses* out of the flower-borders, and to put them in thinly by the heels, as we say, in a place of reserve, there to remain to the middle or end of August, when they ought to be taken up and sorted, and to be replanted, according to their sizes, in a thin bed with a hard bottom, where they are safe enough to Christmas, or until the borders are again ready for them. But the rule which holds good for standing Crocuses will not do for Crocuses that are transplanted when in leaf. Such as are thus removed early to make room for summer things will lose their leaves sooner than those not disturbed; but this early losing of the leaf is not to be taken as a sign to give up watering them altogether. And here is where a great many people have been wrong altogether, for I proved the fact by direct experiments two years back, and forgot to say so this time last year. If the roots and tubers of a transplanted Crocus, which loses the leaves earlier than usual, are allowed to get dry as soon as others that were not transplanted, that is more against them than the transplanting. The reason of that seems to be this: The removal gives a certain check to all plants, least to bulbs, the early fall of the leaf being the effect of the check. Most plants and all bulbs can carry on the process that was not quite finished by the leaves for certain periods after the leaves are gone, provided they are placed in a suitable condition to carry out the process—that is, that they are not allowed to get quite dry nor very wet for some weeks after all traces of the leaves are lost. Every bulb that blooms from February to the middle of May is under this law and rule, or may be brought under it with all safety, provided the ground is not awamped by too much watering, nor yet allowed to get dry for the first month after transplanting. The best place, therefore, for such things to be removed to would be a deep, light, well-drained border on which the sun does not shine but in the mornings and evenings; or if it did not shine upon it, that would be preferable to one exposed to the direct influence of the sun.

There is a little silvery and very small-leaved plant which I mentioned last autumn from Kew, which, I am now fully persuaded, will make one of the most useful edging or first line in a ribbon. I had a handful of cuttings of it late in September, put them under a common hand-glass all through the winter without any more covering; and they have all freely rooted, and last week I had them transplanted 3 inches apart on the back of a narrow border on which I have all the yellow and white Polyanthuses, and where the sun does not touch till the afternoon. I can see quite plainly that a gardener might keep the same plants for six or seven years before they were too large for that purpose, and that 2 inches or 3 inches apart would be sufficient room for them the first season from cuttings, and an inch or a little more would be all the extra room they would need yearly till they were 6 inches across the head and 4 inches or 5 inches high, if they were cut two or three times during the growing season, just as box-edging is clipped, only that it might be done with the knife. It is the very old Lavender Cotton plant, the *Santolina chamaecyparissus*, which, if it were taken up at the end of October, and planted in any sheltered place every year would soon be able to resist the hardest frost in our climate. It should be in the nursery lists of bedding plants for next year.

Another plant, which I mentioned once or twice, is *Stokesia cyanea*, a very strong herbaceous plant of the Composite order, to bloom in the centre of a bed of China Asters all through the autumn. It is yet in the wild or raw state; but assuredly will sooner or later run into double flowers, and then you shall have a race of blue dahlia-like plants at last. It may require the same indulgence as the chrysanthemum to get it to seed; but even should it require to go to Jersey, or Naples, or Algiers, or to Natal, or Sydney to get it to produce double and sportive seedlings, I would not give up the chance it offers to the cross-breeding florist, because, like the dahlia, it would be everybody's plant, and once it is domesticated it would probably increase much like the chrysanthemum. I would also have all the new and old Pyrethrums, and seed them also, and see what industry and perseverance could work out of them. What all Composite flowers seem to require to break them into double flowers and into various shades of colour is very high cultivation for a succession of seasons, and using fresh seedlings every year, but still keeping two or three of the originals until you have them at command, like bulbs which make new sets of roots annually; and the way to do that is to remove them twice a-year into fresh and highly-manured earth, first in October and

then in April in each year, and cutting back every one of their roots to the size of a nice handy ball. This you will call the bulb, and by causing fresh roots so near home, and so often in such stimulating pasture, if the nature of the change is not beyond the art of man, you, or some one you may know somewhere abroad, will be sure to succeed.

In 1850 or 1851 an amateur in one of the eastern counties sent me a cut bloom of a large blue double Cineraria which he said he meant to send up to the fashion office, and which, I think, will be in the volume of THE COTTAGE GARDENER for the time; but ten years are a long time to get into fashion. The other day I saw a second double Cineraria, of which you will hear with this. Why, then, should not all the Cinerarias—if, indeed, they be not rather Senecios—be double. We have had a good run of single ones, and unless something more is done to them, they, too, must go into the same lists as herbaceous Calceolarias—that is, they will be a most useful fashion for private use, like the dressing-gown and slippers; but who would go to a show in that fashion?

I have thought long since that one might get a run of most useful bedding flowers out of *Coreopsis Drummondii*. I have seen it repeatedly half-double, and with two rows and three rows of florets full as the outside ones, and it needed not but so much more extra stimulus to throw up every bottom of the florets which form the disk or centre part of daisy-like flowers, as fully developed as the two or three rings round the outside. Strange it is, that no Composite flower has yet been seen on the centrifugal-force system—that is to say, offering to turn double from the centre of the disk instead of following the lead of the ray florets. Depend upon it that comes not of chance; and if ever you discover the law which governs the finishing up of the florets of Composite flowers from the circumference instead of from the centre of gravity, or by the centrifugal force, you will never have a bull's eye flower in your garden, nor want a large balance at your bankers. Of course you are aware that in all the rest of the flowers the leader goes from the very centre, whether it goes upwards or sideways. Just think of that and how you could alter it.

D. BEATON.

ORCHARD-HOUSE TREES.

I HAVE recently received the enclosed interesting letter about orchard-house trees, which, as I have permission from the writer, you may think worthy of insertion in your columns.—T. R.

"My orchard-house trees were never in such health and vigour as they are now. I shall have a fine crop of Peaches, Nectarines, and Plums; but although I could have more than a hundred each on several of my trees, I do not expect that the average will equal that of last year, when it exceeded fifty all round. But the great attraction for visitors to my orchard-house is the rich, beautiful foliage with which almost every branch is clothed, I may say from the graft to the summit, and the preparation that they are making for next year's crop. I manage them nearly all on the spur system, rarely letting up a new branch from below, and in this way I am less crowded; besides the vigour of the tree is not expended in producing too much wood.

"Last year I was more disposed to the pyramidal form, and although I have been successful with that mode of culture, and have at present half a dozen pyramidal pictures I shall not abandon the 'bush,' which I have found to be useful and productive. Where there is but the one straight stem the sap rushes up with too much force to the top, and causes a number of strong shoots there, while on the lower part of the tree they are weaker and less abundant. But I have arrested this effect to some extent by the use of what I call the tourniquet, which consists of lead wire wound tightly round the stem at distances of about a foot each.

"A propos of *pyramids*, you are quite right in saying that the term is wrong, and that we should call them cylinders. In a little French work, from which I have obtained a good deal of information, by Bulret et Thouin, this method is called '*taille en chandelle*,' and which, while it is admitted to have certain advantages, is termed *assez disgracieuse*. I have not any pyramidal Plum trees, but I mean to cultivate Plums in that way next year.

"Do you remember a Peach that you sent out some years ago as the 'Early York,' and for which you apologised to your

clients, stating that you had been imposed on by getting from America two consignments of the Early York, one of which turned out to be (said you) a worthless late Peach, and you then offered to send, gratis, the true Early York to all those who had got the spurious one? I got the spurious one, but I am far from thinking it worthless. It forms the most beautiful of orchard-house trees. The blossom is different from that of all other Peaches, exquisitely cupped, a charming colour, lasts double the time of other blossom, and every one produces a fruit. Last season this small tree had about two hundred Peaches, which I thinned down to one hundred, and even that was far too many. Yet they looked so pretty I could not bring myself to remove more. They ripened in November, and although not rich nor very sweet, they were pleasant and refreshing; the best of them were used with a little sugar, and the small ones made into a pie. I cut down the two largest branches of this tree last autumn, and those that remained are now full of young fruit, and making excellent spurs for next year.

"You sent a true Early York in the batch of seven which you presented to me some time ago, and I found it to fulfil all the promises you made. It bore forty-two fine fruit last year.

"A great deal of the success of the orchard-house depends on getting the sorts adapted for that mode of culture. For instance, those that make short joints and are prolific, such as the Grosse Mignonne, and Galanée Peaches, Elruge, Violette Hative, Downton, and other Nectarines; but the Noblesse, George IV., and trees of that class, are too long in the joints and of straggling growth. My best tree for this year is a Downton Nectarine on which there are a hundred fruit well set, and most of them larger than a hazel nut. The tree is in a tub and not much more than 3 feet high. I shall also have a grand crop on my potted trees of Green Gage, Orleans, Cox's, Jefferson's, Guthrie's Late Green, Mirabelle, and a large purple Plum the size of a duck's egg, name unknown, and an excellent one for preserving and a very showy fruit. The only idle Plum tree in my orchard-house is a Purple Gage, which I do not think will have more than a dozen.

"Outside, some of the Pears are almost idle, but some of them promise very well. My four trees of Gans'fs Bergamot double worked are all loaded. I find this sort when double worked to be perfectly hardy and a never-failing bearer, and I have one of them now as an open espalier.

"Beurré Bretonneau is very hardy and bears freely, but the fruit does not soften. Duchesse d'Orléans does not bear at all, ditto Urbaniste; and those I mean to expel or cut down and work them with a better sort. I had no idea until this year that Cherries made such interesting trees in the orchard-house. They are beautiful when in bloom and when the fruit has coloured; the slender branches of one of my pyramids, a large-leaved tree, I think Belle Magnifique, bend down so gracefully and the foliage is so fresh and healthy, that it looks quite charming, and I can now understand, what I did not before, why you wished to have a Cherry-house.—JOSEPH MEADOWS, *Wexford.*"

PLANTING OUT BEDDING PLANTS—EFFECTS OF POTATO-STEMS BEING FROSTED.

It may reasonably be expected by this time that the winter is over, and we may be able to make a fair estimate of our available strength in the bedding-stuff line. The fine weather of April was highly favourable to the hardening off of the young stock, and, doubtless, those that are situated like myself, with a limited stock of pots and boxes, have felt an irresistible temptation to put some of it into their summer quarters. And finding the barometer moving downward a little yesterday morning, and the wind shift to S.E.S., I reckoned upon a favourable change of weather; and as I was cramping other things for the want of boxes—and to save time, trouble, and room, I box everything I can, and make boxes out of everything that fulfils in my way—I at once put out a good batch of Scarlet Geraniums, yellow Calceolarias, purple and white Petunia, with the following annua's in small bunches between the plants, taken up with a flat trowel and the roots undisturbed and some of them showing bloom. *Collinsia alba* and bicolor, *Lunanthus Douglasi*, *Nemophila insignis* and *grandiflora*, and *Venus' Looking-glass*. I reckon that at the latest a fortnight's fine weather will bring them into full bloom and fill up the beds, and should the weather prove bright and sunny they will shade the roots of the other plants till they get fairly established.

But to-day (May 8th), has thrown a gloom over yesterday's work. Snow fell from about half-past four in the morning till mid-day, and at one time more than an inch deep on the ground, and the probability is, a frost to-night; but having secured them as well as I can with yew and fir branches, I trust a slight frost will not injure them: Hitherto having been very fortunate with them, not having lost a score out of more than six hundred cuttings of *Calceolarias*, sorted kinds, and kept in a Cucumber-frame throughout the winter. All the cuttings of Geraniums, with the variegated and others, kept in pots during the summer have been kept with scarcely any loss, kept in a home-made cupboard-kind of place with a glass front with a blue a little above the floor; but the old Scarlet Geraniums although taken up before the frost touched them have nearly all died in the same place, it being the only place I could keep them secure from frost.

I should be glad if a few of the readers of THE JOURNAL OF HORTICULTURE would assist me a little in trying to prove the effects of frost on the Potato. Some few years ago I had a row at the end of a bed up much earlier than the rest, and, in consequence, were cut down to the ground with the frost, and their being a different kind to those in the bed, made me remark more particularly the effect at lifting time, and I rather unexpectedly found them equal to the others. Since then I have yearly tried the same experiment with the same result, and in the year 1859, on the 1st of April, there were 12° of frost. I then had a Peach-border several inches high, but were entirely cut off. They recovered that and were again cut off, one portion the size of a Russian mat I covered and were not frosted at all. Yet, at lifting, I could not discover the least difference whatever—they were as early and equal in quantity and in quality. Now, there will be numerous opportunities of trying the experiment this spring, and by putting a few sticks to those that have been frosted and making a memorandum to that effect so as to bear it in mind at lifting time, the thing can easily be settled by giving the result in THE JOURNAL OF HORTICULTURE. Most gardeners not having pits for their earliest crop can bear testimony to the trouble of covering up their earliest Potatoes till after the fear of frost, and at a time, too, when there is so much other work to do; so that if that portion of labour can be saved it will be worth the trouble in proving.—THE DOCTOR'S BOX.

ROYAL HORTICULTURAL SOCIETY.

MAY 14TH.

FRUIT COMMITTEE.—H. G. Bohn, Esq., in the chair. A letter was read from Mr. Spencer, of Woodok, recommending a Local Committee for the county of Wilts, which was approved, and Mr. Spencer appointed Chairman and Convener. A paper on the physical condition, and geological structure of the county of Oxford was received from Mr. Bailey, of Nuneham, Chairman of the Oxfordshire Local Committee, and read before the Committee, and the thanks of the Meeting were given to Mr. Bailey.

The prizes offered by C. Wentworth Dilke, Esq., and W. Wilson Saunders, Esq., were then taken into consideration, and one of those offered by Mr. Dilke, of the amount of £5, was unanimously awarded to the seedling Pine Apple raised by Mr. Oates, gardener to Lord Leigh, Stoneleigh Abbey, Kenilworth. That offered by Mr. Saunders, of the amount of £5, stood over for consideration at next Meeting, when Ingram's Hardy Prolific Muscat Grape is expected to be exhibited in better condition than it was shown during the past season. The remaining prize of £5, offered by Mr. Dilke, was not awarded, but carried forward to next year.

The seedling Strawberry Eclipse exhibited last year by Mr. Willis Reeve, of Canewdon, near Rochford, was again brought forward, and fully maintained the reputation it acquired last year, when it was considered a valuable forcing Strawberry, possessing a high Pine flavour; it was awarded a First-class Certificate. Three seedling Strawberries, raised by Capt. Trevor Clarke, were brought from the Society's garden at Chiswick, one of them a black variety with a deep blood-coloured flesh, and another of a pale scarlet colour; but neither of them was considered desirable as new varieties. A collection of six sorts of forced Strawberries were sent from the garden by Mr. Eylea, which showed that the earliest forcing variety is May Queen, and the second earliest is Black Prince; but Black Prince is the most highly flavoured, and decidedly the preferable variety. All the others, including Keens' Seedling, which was flat and rapid, and Richard II. and Highland Mary, which were very acid, were

inferior in flavour to Black Prince, and all were inferior to Eclipse.

Mr. Robertson, of Linside, near Paisley, offered a prize at this Meeting of £2 for the best, and £1 for the second best three pots of Wizard of the North Strawberry. There was only one exhibition, and the first prize was accordingly awarded to the exhibitor, Mr. Cunningham, gardener to the Lord Bishop of London, Fulham Palace. It was the opinion of the Committee that Wizard of the North as exhibited is not a desirable variety for forcing, being small, inferior in flavour, and very acid. Mr. Cunningham exhibited a seedling Strawberry, called Courteen Hall Seedling, which had no particular merit to recommend it. A dish of very large Oranges was received from Sir Travell Phillips, and the sort proved to be the Pernambuco Orange.

Calville Blanche Apple grown in the orchard-house at Chiswick, proved of very fine quality, and with very tender flesh, as did also Baddow Pippin, but it was too much shrivelled. Mr. Gardiner, of Lower Ealington Park, Stratford-on-Avon sent a very nice collection of well-kept Apples, which received a Certificate of Commendation. Captain Trevor Clarke exhibited a collection of the dried seeds of Kidney Beans.

FLORAL COMMITTEE.—The approach of the exhibition season, and the consequent demands on the time of all who are the usual contributors to these reunions, made the supply of flowers for adjudication exceedingly scant. The great Crystal Palace Show on Saturday, to be followed by the Royal Botanic on Wednesday the 21st, tax pretty well the energies of the growers; besides, any who have any novelties to bring forward will rather keep them for either of those days, when they will be seen by a much larger number of persons. And that is a point which enters somewhat restrictively into the minds of those on whom necessarily the commercial value of a plant must hold a large place; and this will ever, I believe, be found to weigh down even the stamp of the Floral Committee. Perhaps when the new gardens become really thrown open to the public, and these *petite* flower shows become the "correct thing" to be present at, it may be different, but at present the paucity of visitors is an obstacle to growers. There were, however, a few interesting subjects.

Mr. Kendall, of Stoke Newington, sent in a number of very dwarf small-flowered Cinerarias of various shades of colour, and a small *double* one of the same character. As florists' flowers these were utterly worthless, and I therefore rigid florists will scout them; but though pretty strong in that way myself, there seemed to be good reason why the double one should receive the award that it did—a Label of Commendation. It is true, as was observed, that it was very like a double Senecio, but then one does not get a double Groundsel at this time of the year; and although florists' varieties of Cinerarias may be shown as dwarf, yet that is only by the dint of very severe training and infinite trouble, whereas this was shown in its natural state. Something of the same kind may be said with regard to some Pansies exhibited by Messrs. Downie, Laird & Laing, of Edinburgh (from whence the box came) and Stanstead Park, Forest Hill. There were very fine blooms of some of the best varieties out; and along with them two, rather limsy and a little rough, but very remarkable in appearance—one a white with an immense eye, and the other a reddish-crimson, very much after the French style but better shaped: both very attractive, and perhaps the forerunners of an entirely new strain. As a florist I should, of course, condemn them; as a lover of flowers, I should look hopefully at them. A Complimentary Ticket was awarded.

From Messrs. Veitch & Son came a basket of Mrs. Ponsonby Moore—a free-blooming decorative Geranium (figured in the "Floral Magazine") very pretty, and possibly a good bedding one, though this remains to be proved. For this a Label of Commendation was awarded. The same gentlemen also exhibited a basket of *Petunia imitabilis flore pleno*—a very striking variety, something in the way of Madame Henri Jacotot, white, with broad bands of mauve colour. It is said to be a continental variety. A First-class Certificate was awarded to it, as, independently of its colour, it was an excellent grower, and for pot culture very desirable. Also a very beautiful Australian *Pimelea*, most justly named *Elegans*. It is one of the small-growing varieties of the genus, and is like a beautifully white transparent ball with orange points all over; this appearance being caused by the pollen on the anthers. For this a First-class Certificate was awarded. Messrs. Veitch & Son also exhibited some seedling plants (with dried specimens of the foliage) of species of the new *Coniferae*, which were sent home by Mr. J. G. Veitch from Japan, including *Retinospora pisifera*,

obtusa, &c. The thanks of the Committee were awarded for these.

From Messrs. Lee, of Hammersmith, came *Arundo* conspicua—somewhat like the Pampas Grass, but not so fine; the New Zealand Grass (*Syrinchium versicolor*), and *Lauropus Gardneri*. These, with some Azaleas from the Society's garden, formed the only features worth noticing.

GENERAL MEETING.—A General Meeting was held on the same day at 3 o'clock, Right Rev. the Lord Bishop of Winchester, V.P., in the Chair, when a large number of ladies and gentlemen were elected Fellows; among whom were Right Hon. Lord Chesham, Lord Rokeby, Lady Rokeby, Earl of Cawdor, Lady Elizabeth Sturley, Lieut.-Col. T. F. Elphs, Sir C. Lindsay, Sir Henry Rawlinson, Earl of Lanesborough, Frank Crossley, Esq., M.P., &c.

A ballot took place for plants to be distributed.

The Council have appointed a Fine Arts Committee for the decorations of the Gardens, South Kensington, with statuary, vases, &c. It consists of His Royal Highness the Prince Consort, Earl Somers, Earl Ducie, Lord Taunton, Sir Coutts Lindsay, Mr. Wentworth Dilke, Mr. Henry T. Hope, Professor Westmacott, and Mr. Sydney Smirke. The Committee met at the Gardens on Monday and Friday last. His Royal Highness in the chair.

Among the prizes to be competed for at the forthcoming grand exhibition of flowers and fruits, June 5th and 6th, on the occasion of the opening of the Gardens, South Kensington, we notice four prizes of £10, £5, £3, and £2, given by one of their Vice Presidents for the best three groups of fruit and flowers arranged "for the decoration of the dinner table." The prizes are open to all comers, and the articles may be exhibited in baskets, vases, &c., of any material; *beauty in the arrangement* being the test of merit. Ladies are specially invited to compete, and the Council have appointed the following ladies to act as jurors:—The Countess of Shelburne, the Countess of Ducie, Mrs. Holford, Lady Marian Alford, and Lady Midilton.

These are, we believe, the first prizes of the kind given at the Society's Shows, and we anticipate a good deal of interest from the combination of the designs of the numerous competitors.

EFFECTS OF LAST WINTER ON PLANTS IN ENGLAND.

(Continued from page 123.)

THE columns of the various gardening publications are, week by week, re-echoing the devastations of the past winter. It may, therefore, interest many to know that in the extreme south-west of England such casualties have not occurred. Instead of detailing the individual trees or shrubs that have been either injured or died, it will be sufficient to say that *Araucaria brasiliensis* has stood wholly unprotected in Mount's Bay, and that it has not suffered in the slightest degree. *Verbenas* and shrubby *Calceolarias* that were bedded out in some instances have survived; and *Camelias*, *Magnolias*, and the tenderer *Rhododendrons* exhibit no sign of injury from frost, although the violence of the gale in February has, in some exposed situations, damaged the foliage; but from this, like the laurels and bays that were similarly circumstanced, they are rapidly recovering.

The early Potatoes are already coming in from Scilly and some sheltered places on the cliffs between Penzance and the Land's End. On the low grounds, a very heavy dew on the night of Saturday, the 11th of May, followed by severe hoarfrost in the morning, has cut down several acres; but the general crop looks well. Since the 7th of April rain has fallen, but on one day (April 30th) and then only for about forty minutes. The ground therefore requires moisture: but when it comes it will doubtless develop the Potato disease, of which signs have already showed themselves.

The late Broccoli planted in July and August last are growing vigorously, but show no signs of flowering, although their season is now almost gone by. There are many acres in this neighbourhood where this is the case.

The seeds of Onions, Carrots, and Lettuces came up very few and far between; but this is more attributable to the wet season of 1860 than to the present dryness.—W., near Penzance.

PERHAPS the plants that look now perfectly uninjured may be

set down as hardy, and the enclosed list may interest you. My place is fourteen miles west of Dublin, and 300 feet above the sea level, on a cold, stiff soil, and stiff gravelly subsoil on limestone. Every tree in my list, except those to which notes are appended, is flourishing, and not the least injured by the frost which for a long time last winter varied from 12° to 20° Fahr. Laurustinus has been much injured; Roses cut down, but mostly shooting from their roots (even including Adam); Hollyhocks almost all killed. The list of Pines may, perhaps, serve as a guide to those planting in calcareous soils where the Spruce and Larch do not generally succeed. *Pinus insignis* is by far the most rapid grower, and most beautiful here; next *nobilis* and *Nordmanniana*.

TREES PLANTED ELEVEN YEARS.

Pinus insignis, 26 feet high, spread of branches 15 feet, girth at 2 feet from ground 4 feet. *P. insignis*, 27 feet high, girth at 2 feet from ground, 3 feet. *P. strobus*, 24 feet high, girth at 2 feet from ground, 2 feet 6 inches. *P. excelsa*, 18 feet. *P. monticola*, 12 feet. *P. Pallasiana*, 16½ feet. *P. rigida*, 15 feet.

Picea cephalonica, 15 feet. *P. nobilis*, 15 feet.

Cedrus deodara, 15 feet.

Taxodium sempervirens, 20 feet, girth at 2 feet from ground, 3 feet.

Cupressus thurifera, 20 feet.

Araucaria imbricata, 15 feet.

TREES PLANTED FROM TEN TO FOUR YEARS AGO.

Cupressus Lawsoniana and *McNabiana*; *Thuia Lobbii* and *gigantea*; *Thuiopsis borealis*; *Cryptomeria Lobbii*; *Wellingtonia gigantea*; *Abies morinda*; *Picea Nordmanniana*; *Libocedrus chilensis*.

SHRUBS.

Desfontainia spinosa (alive, but not flourishing); *Weigela rosea* and *amabilis*; *Berberis Darwinii*; *Philæa buxifolia*; *Eurybia alpina*; *Griselinia littoralis*; *Myrtus apiculata* (injured not killed); *Eucallonia macrantha*; *Spiræa*, var.; *Hibiscus syriacus*.—CHARLES W. HAMILTON, *Hamwood, Dunboyne*.

CULTURE OF THE GRAPE VINE.

(Continued from page 61.)

PLANTING.—The cultivator having procured his Vines either from a nursery or by propagating them himself till they are fit to plant, the next operation will be the important one of planting. For walls the best season is autumn, only the border should be covered with short litter to keep out the frost. The planting of Vines in a greenhouse or stove should be deferred till March, but even then the Vines ought to be planted before the buds begin to swell.

The mode of planting for out-door culture will be somewhat different to that for in-door culture. The roots should be more spread out right and left, because each Vine will eventually cover more space—that is, there will be more space between each Vine. In the sketch of the Vine-border, at page 41, the roots are shown running across the border—the right plan, because each Vine only has the breadth of each light for its pasture; but on a wall in the open air each Vine trained, as I shall show presently, will have a space of 18 feet broad for its roots to ramble in: hence the roots should be spread laterally as shown by this sketch (fig. 1).

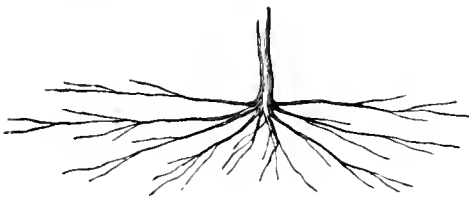


Fig. 1.

In planting choose a dry day and turn out the ball entire, and pick out from among the roots all the soil. Then carefully uncoil and disentangle the roots, and remove a thin stratum of the soil sufficient in length and breadth to contain them. Then spread them out at equal distances, and cover them with a compost of loam and leaf mould in a rather dry state 2 inches thick. Some authors recommend decayed tan to cover the roots with; but I

do not recommend that substance to come near the roots, for when it is very rotten it has a soapy, muddy appearance, and often in that state it is poisonous to the young fibres. When all are planted fork over such parts of the border as may have been soddened by treading upon, and cover the border with some warm stable-dung sufficient to give out a milkwarm temperature. To be quite perfect the border, after the Vines are planted, should be protected from heavy rains, either with tarpauling or shutters just raised above the dung resting upon a long piece of wood next the houses, and on a similar piece on the side of the border next the walk. Where the Vines are planted inside, this covering may be dispensed with the first year: but when the roots have pushed through outside, then this shelter ought to be applied as soon as the wood is ripe.

So far my remarks are general, and apply to all Vines excepting such as are grown in pots or in an orchard-house. It is time now to enter into the various ways by which the Vines are grown, commencing with

VINES IN THE OPEN AIR ON WALLS.

In the south of England we often see the walls of cottages and even better-class houses covered with a Vine, which in favourable seasons ripens very nice fruit, or, at least, would do if better managed. Every bunch the Vine shows is allowed to grow and not a berry is thinned out, and too often not a summer's shoot is shortened—and the training, why, it is just haphazard. With such management it is no wonder that the fruit is not so good as it might be if better attended to. If a Vine is planted against a house, the main stem should be trained straight up, and side shoots taken from it to cover the spaces between the windows. Young wood should be laid in annually and brought close to the wall to ripen it, and no more should be allowed than is necessary to produce fruit. All laterals should be stopped at the first joint, and cut away as the wood ripens. Regular attention to this stopping and training, and allowing no more than one bunch to each shoot, and as soon as the berries are as large as peas to thin out at least half of them, would give the fruit a chance to swell larger and ripen better.

It is, however, to the culture of the Grape Vines on a garden wall facing the south, that I now wish to draw the attention of the cultivator. The management, after the border is properly made and the Vine planted, consists chiefly in pruning and training. The best mode of training is, first to obtain two shoots from the two buds left on when the Vine was planted. Let them be trained upright at 2 feet apart (fig. 2). Then in the autumn bring those two shoots down, and train them horizontally at about half a yard from the ground (fig. 3). Pinch out all the buds excepting three on each side of the main stem. Let these six shoots be trained perpendicularly close to the wall (fig. 4). If all has gone on well those shoots will run up to the top of the wall that year.



Fig. 2.



Fig. 3.

During the summer stop all the laterals at the first joint, and stop each leading shoot when it has reached to the top of the wall. See that the shreds are not too tight, or they will strangle the shoots. If the summer is dry give the border a good soaking of water

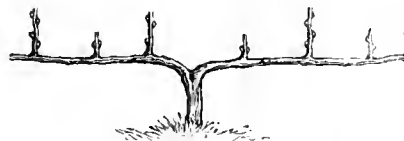


Fig. 4.

once a fortnight. The distance from shoot to shoot should be 2½ feet. If they are closer the wood will not ripen so well, and if wider there would be a loss of space. By the end of September or middle of October the leaves should be turning yellow and the wood brown. As soon as the first frost has brought off all the leaves, then proceed to prune the Vines. My mode of

pruning the Vine on walls, whether in or out of doors, is the alternate long-rod system. By this plan a regular supply of good fruit-bearing wood is secured, and, besides that, the method is simplicity itself, and is regular and neat in appearance. In the autumn the Vines will have two shoots to bear fruit, and these should be pruned to nearly the top of the wall. Two others will be cut down to a bud close to the main horizontal stems. These will send up shoots to be trained between the fruit-bearers, whilst the two end shoots should be trained down in the same line as the horizontal ones.

In the third summer the last year's horizontally-trained shoots should have all the buds rubbed off excepting two on each. These two should be 2½ feet apart and trained to the wall should reach the top of it that year. This year's growth will cover the space of wall each Vine should fill—that is, there will be four fruit-bearing upright shoots, and four shoots to bear fruit the

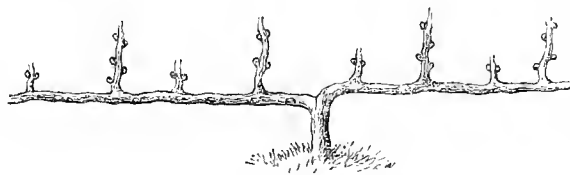


Fig. 5.

following year (fig. 5). In the autumn those that have borne fruit should be cut down, and the others left nearly their whole length to bear fruit.

Should the trees when four or five years old show anything like weak growth, then remove a portion of the surface soil, and add a sufficient quantity of fresh compost to renew and sustain their strength. Occasional waterings with liquid manure will greatly assist their growth, and will help to swell off the fruit. The finest fruit will always be near the top of the wall, but I have had very good bunches and berries about halfway down.

The following are good kinds to grow against a wall in the open air:—Early Black July, Esperione (black), Royal Muscadene (white), White Dutch Sweetwater, Black Hamburgh, and Verdelho (green).

T. APPLEY.

(To be continued.)

CRYSTAL PALACE FLOWER SHOW.

THE first Flower Show of the season was held at the Crystal Palace on Saturday last, and although we missed some of the great exhibitors who usually contribute towards the effect of these floral gatherings, there was, nevertheless, a very excellent display. The close proximity of the grand opening at Kensington Gore has caused many of the large exhibitors to keep their plants back for that occasion, and hence the dearth so apparent of those floral mammoths which we were accustomed to see on those occasions.

We must reserve till next week our critical observations on the Exhibition, merely remarking that the Roses in pots of Messrs. Lane, were as usual very fine, as were those also of Mr. William Paul, of Waltham Cross. The Pelargoniums and Cinerarias of Mr. C. Turner, also formed a prominent feature; and among the Fruit, we remarked the fine exhibitions of Mr. Hill, of Keele Hall, of Mr. Henderson, of Trentham, and of Mr. Stewart, of Chatsworth, from the midlands, who seemed to have the best of the great stakes. All we can do at present is simply to append the prize list, leaving our observations till next week.

TWENTY STOVE AND GREENHOUSE PLANTS (in flower).—First and Second, Mr. B. Peed, gardener to T. Tredwell, Esq., St. John's Lodge, Lower Norwood.

TWELVE STOVE AND GREENHOUSE PLANTS (in flower).—First, Mr. John Green, gardener to Sir E. Antrobus, Bart., Lower Cheam. Second, Mr. R. Baxendine, gardener to W. A. Smallpiece, Esq., Millmead House, Guildford. Third, Mr. William Cuthbert, Nursery, Barnet.

EIGHT STOVE AND GREENHOUSE PLANTS (in flower).—First, Mr. H. Chilman, gardener to Mrs. Smith, Ashstead House, Ashstead. Second, Mr. Wm. Kaile, gardener to the Right Hon. Earl Lovelace, East Horsley Towers, Ripley. Third, Mr. Thomas Page, gardener to W. Leaf, Esq., Streatham. Fourth, Mr. James Tegg, gardener to Baron Hambro, Southampton. Extra Prize, Mr. Osman Rhodes, Nursery, Sydenham Park.

SIX STOVE AND GREENHOUSE PLANTS (in flower).—First, Mr. Thomas Page, gardener to W. Leaf, Esq., Streatham. Second, Mr. Charles Smith, gardener to Arthur Anderson, Esq., Norwood. Third, Mr. William Kaile, gardener to the Right Hon. Earl Lovelace, Ripley. Fourth, Mr. H. Chilman, gardener to Mrs. Smith, Ashstead. Fourth, Mr. John Green, gardener to Sir E. Antrobus, Bart., Lower Cheam. Extra Prize, Mr. R.

Baxendine, gardener to W. A. Smallpiece, Esq., Millmead House, Guildford.

TWELVE FINE-FOLIAGED AND VARIEGATED PLANTS. —First, Mr. Charles Hunt, gardener to Miss Burdett Coutts, Highgate. Second and Third, Mr. G. Young, gardener to W. H. Stoe, Esq., Dulwich Hill. Fourth, Mr. G. H. Bunney, Stratford. Fourth, Mr. J. Smith, gardener to Coles Child, Esq., Bromley.

SIXTEEN ORCHIDS (of Exotic Species, in flower).—First, Mr. Robert Stone, gardener to J. Day, Esq., Tottenham. Second, Mr. B. Peed, gardener to T. Tredwell, Esq., St. John's Lodge, Lower Norwood.

TEN ORCHIDS (of Exotic Species, in flower).—First, Mr. Edward McMoreland, 29, Adelaide Road, Haverstock Hill. Second, Mr. Robert Stone, gardener to J. Day, Esq., Tottenham. Third, Mr. Thomas Page, gardener to W. Leaf, Esq., Park Hill, Streatham. Fourth, Mr. S. Woolley, Cheshunt, Herts.

SIX ORCHIDS (of Exotic Species, in flower).—First, Mr. Charles Penny, gardener to H. H. Gibbs, Esq., St. Dunstan, Regent's Park. Second, Mr. G. H. Bunney, Stratford. Third, Mr. Edward McMoreland, 29, Adelaide Road, Haverstock Hill. Fourth, Mr. Robert Stone, gardener to J. Day, Esq., Tottenham.

TEN GREENHOUSE AZALEAS. —First, Mr. Charles Turner, Royal Nurseries, Slough. Second, Mr. John Green, gardener to Sir Edmund Antrobus, Bart., Lower Norwood. Third, Mr. S. M. Carson, gardener to J. C. Sim, Esq., Nonsuch Park, Cheam. Extra Prize, Mr. Thomas Page, gardener to W. Leaf, Esq., Streatham. Extra Prize, Messrs. James Ivory & Sons, Dorking and Reigate.

SIX GREENHOUSE AZALEAS. —First, Mr. Charles Turner, Royal Nurseries, Slough. Second, Mr. Thomas Page, gardener to W. Leaf, Esq., Streatham. Third, Messrs. James Ivory & Sons, Dorking. Third, Mr. Charles Penny, gardener to H. H. Gibbs, Esq., St. Dunstan, Regent's Park. Fourth, Mr. B. Peed, gardener to T. Tredwell, Esq., Lower Norwood. Extra Prize, Mr. Charles Smith, gardener to Arthur Anderson, Esq., Norwood.

EIGHT GREENHOUSE AZALEAS (New kinds).—First, Messrs. James Ivory & Sons, Dorking. Second, Mr. Charles Turner, Royal Nurseries, Slough. Third, Messrs. James Ivory & Sons, Dorking.

EIGHT CAMELLEAS. —Second, Mr. B. Peed, gardener to T. Tredwell, Esq., Lower Norwood. Third, Mr. O. Rhodes, Nursery, Sydenham Park. Fourth, Mr. Thomas Page, gardener to W. Leaf, Esq., Streatham. Fourth, Mr. H. Chilman, gardener to Mrs. Smith, Ashstead.

SIX TALL CACTI (species or varieties of, in flower, large plants).—First, Mr. John Green, gardener to Sir Edmund Antrobus, Bart., Lower Cheam. Second, Mr. Wm. Young, gardener to R. Barclay, Esq., West Hill, Highgate. Third, Mr. A. G. Ashman, gardener to C. W. Major, Esq., Burntwood Grange, Wandsworth Common.

TEN ROSES (in pots, distinct kinds).—First, Messrs. Lane & Son, Great Berkhampstead. Second, Mr. Wm. Paul, Waltham Cross. Third, Messrs. Paul & Son, Cheshunt.

SIX ROSES (in pots not exceeding 8 inches in diameter).—First, Mr. Wm. Paul, Waltham Cross. Second, Mr. Charles Turner, Royal Nursery, Slough. Third, Messrs. Paul & Sons, Cheshunt. Fourth, Messrs. Lane and Sons, Great Berkhampstead. Extra Prize, Mr. Wm. Kaile, gardener to Rt. Hon. Earl Lovelace, Ripley, Surrey.

TEN PELARGONIUMS (distinct varieties, in pots, not exceeding 8 inches in diameter).—First, Mr. Charles Turner, Royal Nurseries, Slough. Second, Messrs. J. Dobson & Sons, Woodlands Nursery, Isleworth.

EIGHT FANCY PELARGONIUMS (distinct varieties, in pots, not exceeding 8 inches in diameter).—First, Mr. Charles Turner, Slough. Second, Messrs. J. Dobson & Sons, Isleworth.

SINGLE SPECIMENS OF NEWLY-INTRODUCED, EXTREMELY RARE, OR BEAUTIFUL PLANTS, IN OR OUT OF FLOWER, BARY OR EXOTIC. —First, Mr. S. B. Williams, Nursery, Holloway. Second, Mr. W. Bull, King's Road, Chelsea. Third, Mr. G. Rogers, gardener to Capt. Jefferys, R.N., Foot's Cray. Third, Mr. G. H. Bunney, Stratford. Three equal Fourth Prizes, Mr. W. Bull, King's Road, Chelsea.

SIX PLANTS OF CIERARIAS (in pots, not exceeding 11 inches in diameter). —First, Mr. Charles Turner, Slough. Second, Messrs. J. Dobson & Sons, Isleworth. Third, Mr. James Burley, Nursery, Limsfield, Surrey. Fourth, Mr. W. Lovesey, gardener to J. J. Fry, Esq., Baston Hayes, Bromley.

MISCELLANEOUS. —Prize, Mr. G. H. Bunney, Stratford. Prize, Mr. Wm. Paul, Waltham Cross. Third, Mr. James Burley, Limsfield. Fourth, Mr. H. Lavey, gardener to E. A. DeGrave, Esq., Fitcham, Surrey. Fourth, Mr. William Bull, King's Road, Chelsea. Fourth, Messrs. F. & A. Smith, Dulwich. Extra Prize, Mr. Charles Turner, Slough; Mr. John Porter, Paragon Nursery, Brixton Hill. Highly Commended, Messrs. F. & A. Smith, Dulwich.

CUT FLOWERS.

TWENTY-FOUR TULIPS (dissimilar).—First, Mr. Charles Turner, Slough. Second, Mr. B. H. Betteridge, Milton Hill, near Stevenage, Berks. Third, Mr. Nathaniel Norman, 98, Crescent Road, Plumstead. Fourth, Mr. James Batten, Brook Street, Clapton.

TWENTY-FOUR PANSIES. —First and Second, Mr. J. James, gardener to W. F. Watson, Esq., Isleworth. Third, Mr. Edward Shenton, Heaton Park Nurseries.

FRUIT.

Class A.—PINE APPLE (single fruit of any kind).—First, Mr. Andrew Stewart, Chatsworth. Second, Mr. Thomas Page, gardener to W. Leaf, Esq., Park Hill, Streatham. Third, equal, Mr. George Cameron, Goodwood Gardens, Sussex; Mr. James Drewett, gardener to Mrs. Cubitt, Denbies, Dorking. Fourth, Mr. T. Page, gardener to W. Leaf, Esq., Park Hill, Streatham. Extra, Mr. Walter Davies, Starch Green, Middlesex.

Class B.—GRAPES (Black, single dish).—First, Mr. William Hill, gardener to Ralph Sneyd, Esq., Keele Hall, Staffordshire. Second, Mr. Archibald Henderson, Trentham, Staffordshire. Third, Mr. George Wortley, gardener to Admiral the Hon. P. Cary, Norwood.

Class C.—GRAPES (White, single dish).—First, Mr. Charles Powell, gardener to Dr. S. Newington, Titcher, Sussex. Second, Mr. John Embery, gardener to A. Moss, Esq., Chadwell Heath, Essex. Third, equal, Mr. F. W. Durrant, gardener to the Hon. Col. Duncanson, Waresley Park. St. Neot's, Hunts; Mr. T. Page, gardener to W. Leaf, Esq., Park Hill, Streatham. Fourth, Mr. Henry Baker, gardener to J. Harrison, Esq., Belgrave, Leicestershire. Extra Prize, Mr. Thomas Bailey, gardener to T. T. Drake, Esq., Shardeoles, Amersham, Bucks.

Class D.—GRAPES. —First, Mr. William Hill, gardener to Ralph Sneyd, Esq., Keele Hall, Staffordshire. Second, Mr. H. Baker, gardener to J. Har-

rison, Esq., Belgrave, Leicestershire. Third, Mr. Montgomery Henderson, Cole Otton Hall, Ashby-de-la-Zouch, Leicestershire. Fourth, Mr. Thomas Frost, gardener to E. L. Betts, Esq., Preston Hall, Aylesford, Kent. Extra Prize, Mr. Alexander McKenzie, Bristol Nurseries; Messrs. Spary & Campbell, Queen's Graperies, Brighton.

Class E.—PEACHES, (single dish of one kind only).—First, Mr. Archibald Henderson, Trentham, Staffordshire. Second, Mr. Montgomery Henderson, Cole Otton Hall, Ashby-de-la-Zouch. Third, Mr. Thomas Dawson, gardener to Viscount Palmerston, Broadlands, Romsey, Hants.

Class F.—NECTARINES, (single dish of one kind only).—First and Second, Mr. Archibald Henderson, Trentham, Staffordshire.

Class G.—MELONS, green-fleshed, single fruit).—First, Mr. James Taplin, gardener to Lord Hatfield, Teddesley Park, Stafford. See nd, Mr. Thomas Frost, gardener to E. L. Betts, Esq., Preston Hall, Aylesford, Kent. Third, Mr. James Eastone, gardener to Sir J. Duckworth, Bart., Wear House, Exeter.

Class M.—MELONS, (scarlet-fleshed, single fruit).—First, Mr. James Eastone, gardener to Sir J. Duckworth, Bart., Wear House, Exeter. Second, Mr. Thomas Frost, gardener to E. L. Betts, Esq., Preston Hall, Aylesford.

Class J.—CHILLIES (Single dish).—First, Mr. Archibald Henderson, Trentham, Staffordshire. Second, Mr. Archibald Henderson, Trentham, Staffordshire. Third, Messrs. Thomas Jackson & Sons, Royal Gardens, Hampton, Court.

Class K.—STRAWBERRIES, (single dish in fifties).—First, Mr. R. Smith, Richmond, Twickenham. Second, Mr. Thomas Bailey, gardener to T. T. Drake, Esq., Shaddecks, Amersham, Bucks. Third, Mr. Joseph Gillham, Mogden Lane, Isleworth.

Class L.—STRAWBERRIES, (three kinds, twenty-five of each).—First Mr. R. Smith, Richmond Road, Twickenham. Second, Mr. Charles Turner, Royal Nursery, Slough.

Class M.—STRAWBERRIES (In pots, six plants).—First, Mr. W. Kalle, gardener to the Right Hon. Earl Lovelace, Ripley. Second, Mr. C. Smith, gardener to A. Anderson, Esq., Norwood. Third, Mr. Willis Reeve, Apton Hall, Canewdon, Redford.

Class N.—MULCH PLANTS.—Prize, Mr. F. W. Durrant, gardener to the Hon. Col. Duncombe, Waresley Park, St. Neot's, Hants.

DEATH OF PROFESSOR HENSLOW.

WE regret to have to announce the death of the Rev. John Stevens Henslow, Professor of Botany in the University of Cambridge, who died on the 16th inst., at Hitcham, Suffolk, of which place he was rector since 1837.

The late Professor was born at Rochester in 1796, being the eldest son of J. P. Henslow, Esq., by his wife Frances, daughter of Thomas Stevens, Esq. Having imbibed the elements of education at Rochester School, he was sent to St. John's College, Cambridge, where he graduated in 1818, as 16th wrangler. In 1821 he took the degree of M.A., having previously taken holy orders.

On the death of Dr. Edward Daniel Clarke in 1822, Mr. Henslow was elected his successor in the Professorship of Mineralogy. The majority of the members of the Senate, however, voted for the Rev. Thomas Jephson, of St. John's College; but the heads of colleges refused to admit him to the office, on the ground that he had not been duly nominated by them. Mr. Jephson's adherents thereupon applied to the Court of King's Bench for a mandamus, but the case was not proceeded with, in consequence of Mr. Jephson having, *pendente lite*, been indicted for a crime *hæreticæ Christianis nominandum*. The question was not finally decided before Mr. Henslow had ceased to hold the professorship.

In 1825 he succeeded the Rev. Thomas Martyn in the Professorship of Botany, which he continued to hold to the time of his death.

The Government presented him, in 1837, to the rich rectory of Hitcham, in Suffolk. This benefice is worth £1179 per annum, besides a residence. Professor Henslow's scientific attainments were very great, nor were his antiquarian acquisitions by any means inconsiderable.

His principal works are:—"A Geological Description of Anglesa," "The Principles of Descriptive and Physiological Botany," "Le Bouquet des Souvenirs," "Report on the Diseases of Wheat," "Account of Roman Antiquities found at Rougham," "Dictionary of Botanical Terms," "Flora of Suffolk" (conjointly with E. Skepper); besides numerous papers in scientific periodicals.

By his wife Harriet, daughter of the Rev. George Jenyns, of Bottisham Hall, Cambridgeshire, he has left issue a son, the Rev. Leonard Ramsay Henslow, born in 1831; and, we believe, other children.

THE ILLUSTRATED BOUQUET.—This, the Twentieth Part, or quarterly issue, is very rich in selections of kinds of plants for the flower garden, and equally so in illustrations of the choicest new flower-garden plants of the sections of Pelargoniums, or Geraniums, Fuchsias, and Dianthus. The first plate, 46, re-

presents *Rhododendron aureum magniflorum*, one of the best of the large yellow *Rhododendrons*, under which "is an enumeration of the most commendable kinds of that race of *Rhododendrons* for general cultivation," and the way to obtain them by means of cross-fertilisation. The next plate represents a full-sized view of Princess of Prussia, a "*Horseshoe Pelargonium*." This is the second and the best kind of *Globe Scarlet Geranium* that has yet appeared worthy of the name of *Compactum*—a brilliant scarlet shaded with orange and crimson. Under this richly illustrated bedder we have selections from *Zonale* or *Horseshoe-leaved Geraniums*, from the *Compactum* section of *Horseshoe*, from the plain-leaved or *Inquinans* section of *Scarlet Geraniums*, and from the "*Nosegay* section or varieties from *Fothergillii*," of Sweet's. On the next plate is the new Hybrid *Perpetual* or *Mule Pink*, *Dianthus hybridus multiflorus*—the best flower-garden plant that has yet appeared in *Dianthus*; we have seen it growing in a pot and there is no mistake about it. It is very bushy or stocky at the bottom, and has a profuse head of branched flower-stems (not scapes, which are the flower-stalks only of bulbous plants), and it blooms continuously from June to November, unless it is stopped by a severe frost. The best single *Mule Pink*, and the double form of it, which was raised by Captain Trevor Clarke, stood with us last winter without getting the top of a leaf browned. All this breed seem as hardy as the mountain *Pink*. The next plate represents an extraordinary yellow, large-leaved bedding *Geranium*, called *Cloth of Gold*, which is said to be of a fine, "free, dwarf, bushy habit;" "also, specially marked by its exceedingly dense-leaved habit throughout the summer and winter." Following this are given selections of variegated *Geraniums* for all the various purposes they are useful for. The last plate is of three of Mr. Banks' best *Fuchsias*, black, blue, and white, or the nearest tints to them, *Black Prince*, *Prince Leopold*, and the *White Lady*, all reflexed and as large as *crinoline* can stretch them. Then are given lists and selections of *Fuchsias* new and old and for various purposes. This is one of the most useful parts of this valuable work.

REPORT ON THE GARDEN PEAS,

GROWN AT CHISWICK DURING 1860.

By ROBERT HOGG, LL.D., F.R.H.S., Secretary to the Fruit Committee.

(Continued from page 116.)

42. Monsieur SoyerTURNER.

The plant is not a strong grower, and produces a simple stem 2 feet to 2½ feet high, bearing from ten to twelve pods, which are single and double in about equal proportions. Foliage deep green, and much blotched. This season the pods filled very unequally, and rarely contained more than four or five perfect Peas; all the others being abortive or imperfectly developed. Ripe seed white and wrinkled.

Sown February 19th; bloomed May 29th; slatted June 16th; and ready for use July 10th.

This is decidedly a tender variety and ill-suited for such a season as the past; but it has all the character of an excellent sort, being very productive of pods, and the earliest of all the dwarf white Wrinkled Peas. In a warmer season it would doubtless prove a desirable second early in the Wrinkled class, to come in after *Advancer*. It was raised by Dr. Maclean, of Colchester.

43. Tall White Mammoth.

SYN: *Flanagan's Imperial* } FLANAGAN & SON.
Norfolk Marrow. }

Green's SuperbNOBLE, COOPER, & BOLTON.

Ward's IncomparableNOBLE, COOPER, & BOLTON.

Oxford TomSTUTTON & SONS.

Colton's LeviathanHURST & M'GULEN.

Champion of ScotlandLAWSON & SON.

This is a strong and vigorous grower, 6 feet to 7 feet high, and when planted thinly produces three or four lateral branches, which are almost as long and productive as the main stem. The foliage is very much blotched. The pods are from twelve to twenty-four on a plant, and are generally in pairs, of a bright green colour, containing on an average seven very large Peas, which are over half an inch in diameter. The ripe seed is white and wrinkled.

Sown February 19th; bloomed June 19th; slatted June 23th; and ready for use July 14th.

This is a very valuable *Pea*, producing an abundance of very large well-filled pods. The plant continues growing, blooming,

and podding, and it is not unusual in mild seasons to find it supplying an excellent dish of green Peas as late as Christmas.

44. Maclean's ProlificTURNER.

The plant is a free and rather vigorous grower, 2½ feet to 3 feet high, and with dark green foliage, which is very much blotched. The stem is simple and produces nine to twelve pods, which are generally in pairs, and were this season very unequally filled. They mostly contained from five to six well-developed Peas, all the others being either abortive or only partly grown. The ripe seed is white and wrinkled.

Sown February 19th; bloomed June 15th; slatted June 26th; and ready for use July 15th.

It will be seen that although this bloomed four days earlier than Tall White Mammoth, and was slatted two days earlier, it was not fit for use till the day after that variety was ready for gathering. In all probability had the season been warmer this would have proved itself an earlier and much more productive sort.

45. AllianceNOBLE, COOPER, & BOLTON.

SYN: *Eugenie*.

Plant with a free habit of growth, having a succulent stem, and rather light green blotched foliage. The stem is simple, 3 feet high, and produces from twelve to sixteen pods, which are generally in pairs, and are produced at every joint. They are not well filled, and contain only five to six good-sized Peas in each. The ripe seed is white and wrinkled.

Sown February 19th; bloomed May 29th; slatted June 16th; and fit for use July 16th.

This differs from Climax, only in having the ripe seed white. When first introduced it was a valuable acquisition as being a tolerably early dwarf white Wrinkled Pea, but it is now far surpassed in every way by several of Dr. Maclean's new varieties.

46. British QueenNOBLE, COOPER, & BOLTON.

SYN: *Carter's Victoria*CARTER & CO.

Great BritainNOBLE, COOPER, & BOLTON.

Thorne's Royal Britain HURST & M'MULLEN.

Rollison's VictoriaNUTTING & SONS.

Shanley MarrowFRASER, RICHARDSON & GOAD.

This is a free and robust grower, 6 feet to 7 feet high. The stem is generally single, but also sometimes branched when the seed has been sown thin, and then it is furnished with two or three laterals which are the same height as the main stem. The pods are generally single, but occasionally in pairs, and are to the number of thirteen to eighteen on a plant; they contain five to seven very large Peas, some of which are more than half an inch in diameter. The ripe seed is white and wrinkled.

Sown February 19th; bloomed June 20th; slatted June 30th; and fit to be gathered July 16th.

British Queen is now an established variety, and justly esteemed as one of the best and most productive of the Tall Wrinkled Marrows. On a well-branched plant I have counted as many as thirty-one pods of all kinds, including those full grown and those just formed; and in a mild autumn it is not unusual for it to continue growing, blooming, and podding as late as Christmas. I do not see any material difference between this and Tall White Mammoth, with the exception that the latter is two days earlier; the plants are exactly similar in habit, and are equally productive.

WHITE POLYANTHUS.

THROUGH the kindness of a rev. gentleman in Norfolk I now possess the finest white Polyanthus in the world, and the most flowery Polyanthus I ever saw; it is at the same time the sweetest-scented kind that ever passed through my hand. When I opened the basket the room was soon filled with its delicious scent.

One expense, however, brings on another; and what I principally write this for is to make an ardent and very strong appeal to the kindness of all the kind people of the three kingdoms to hunt me out and to send to me, at my own expense, the most decidedly scarlet, or the nearest to scarlet, of all the Polyanthuses in cultivation. If I succeed in this effort, I have a notion that I shall be able so to dispose of the cream of the flock as to be able to put a "Good Gracians" spring-bed within the reach of all our people, and to bring up the Polyanthus to that point of public favour which it obtained when Lisbon was nearly swallowed up by the earthquake. It often appeared strange to me the earth never quaked under the florists for despising

pin-eyed Polyanthuses—the best eye to cross of all other eyes. Those which are not pin-eyed must have the throat of the flower cut open with some sharp instrument, to get at the pin-head and to dust it with the pollen.—D. BEATON.

OUR CULTIVATED SOILS.

THERE is certainly nothing in the whole gardening world that bears a more indefinite meaning than the word "loam." In many districts a first-class plantsman would apply that term to the most useful article he puts on the potting-bench; while in this neighbourhood (Staplehurst), the best bricks are made from what is locally termed "loam," and farmers and fruit-growers generally cover their grafting operations with the same material.

Now, it is needless offering any opinion as to which of the parties mentioned above are right, for both will claim to be so, although it is evident there is a wide difference in the materials to which they both apply one name: the only practicable way must be to qualify the term by calling one kind "an open friable loam," and the other a "stiff clayey loam;" for, be it remembered, Kentish men makes a difference between loam and clay, although, as I have just said, they make the best bricks of the former, its superior properties being its not shrinking so much in the fire, and retaining a better shape when taken out; and for grafting it has the same good property of not cracking so much as clay does.

Now, these qualifications indicate a certain amount of tenacity, but not exactly of that plastic description which a tough clay possesses. But as the making of bricks, drain tiles, and the like need not be entered into here any further than to explain the term "loam" as used in some places, we may next see in what sense it is generally used in gardening matters, promising in the first case that it will be best to qualify the term in such a way as to make the meaning understood by all.

In this I may say that I am only taking up a subject left unfinished by our late talented and respected fellow-writer to this Journal, Mr. Errington, whose last article, it will be remembered, was on "Soils, Earths, and Loam," and apparently only commenced with when Nature gave way.

LIGHT HAZEL LOAM.—This term is far from being so expressive as could be wished, for its constituent parts may differ as wide almost as the antipodes; but it is generally made use of to denote a loam mingled more or less with gravel, the colour being pale, and the substratum porous; but the quantity of sand in such a loam is not sufficient to entitle it to the term of a sandy loam or sandy soil. Many of the valleys in Hertfordshire possess a soil of this description, the hills being of chalk overlaid with a thin crust of rather a stiffish white loam, or soil differing in many respects from this. In a general way a light hazel loam produces good Wheat and Barley, and grass land adapted for sheep, but not for cattle; if not too much surcharged with water, Oak and Beech trees thrive in it; and most garden vegetables of the grosser-feeding kinds do well in it, excepting Celery and Asparagus. But so much depends on the substratum that it is difficult to form a correct judgment upon it; for if it be of a hungry or, perhaps, pernicious character, and the soil shallow, its fertility must be only of a secondary kind: this, however, is widely different where it rests on a bed of a contrary description.

A WHITE CHALKY LOAM.—This is the coating so many of our chalk hills have—some of them thickly covered also with stones of a flinty character. Such a soil is not adapted for many garden products. Early Peas, however, stand the winter well in it, and its being distasteful to slugs, seedling plants are raised with more certainty of success than in some other soils. But it is almost death to Rhododendrons, Calceolarias, and such plants as like a soil more or less impregnated with iron. But I believe many plants often grown in our greenhouses in a soil the reverse to this would do well in it—I mean the pea-flowering plants from New Holland and elsewhere. Witness the Saintfoin, Clover, Furze, Broom, Trefoil, and other plants often found wild on this soil, and compare these with the Polygala, Pimeleas, Coronilla, and other things, and see if there is not a great resemblance. I believe I am also right in saying that on a soil of this description plants will stand the winter best; but, on the other hand, they suffer sadly in a dry summer, and vegetables require both liquid and solid food in an extravagant degree to bring them to perfection. Filberts seem to do better here than any other fruit, yet it is not exactly the one this

capricious shrub requires; but as many trees, as well as herbs, have the knack of accommodating themselves to circumstances, we often see that good cultivation accomplishes good results even on a chalk hill.—J. ROBSON.

(To be continued.)

NEW AND RARE PLANTS.

BELOPERONE VIOLACEA (*Violet-coloured Beloperone*).

Nat. Ord., Acanthaceæ. *Linn.*, Diandria Monogynia. Native of New Grenada. Bears exposure in borders during summer and autumn on the Continent. Flowers purple.—(*Bot. Magazine*, t. 5244.)

PARITUM ELATUM (*Lofty Paritum*).

Nat. Ord., Malvaceæ. *Linn.*, Monadelphia Polyandria. This, which has also been called a Hibiscus, produces the *Cuba Bast*, so well known to gardeners. "It is a noble tree (50 to 60 feet high) with ample, cordate-rotundate leaves and large flowers, both in bud and when expanded of a bright brick-red colour." It is native of Jamaica and Cuba. Its wood is much valued by cabinetmakers, being in colour a dark-variegated green, often called "green ebony." The negroes make superior ropes of the bark, and a mucilage that has been employed advantageously in dysentery, is obtained by boiling water from the young shoots and leaves. The inner bark also yields that beautiful network fibre known as "Cuba Bast."—(*Ibid.*, t. 5245.)

TILLANDSIA RECURVIFOLIA (*Recurved-leaved Tillandsia*).

Nat. Ord., Bromeliaceæ. *Linn.*, Hexandria Monogynia. Sent to Kew Gardens from Panama, by W. D. Christie, Esq. Flowers white, with rose-coloured bracts.—(*Ibid.*, t. 5246.)

MALORTICA SIMPLEX (*Simple-leaved Malortica*).

Nat. Ord., Palmaceæ. *Linn.*, Monœcia Hex-Dodecandria. Native of Costa Rica. Flowered at Kew in February of the present year. It is a slender, graceful, dwarf palm.—(*Ibid.*, t. 5247.)

DRACENA BICOLOR (*Broad-leaved two-coloured Dracena*).

Nat. Ord., Asparagineæ. *Linn.*, Hexandria Monogynia. Native of Fernando Po. Flowered at Kew in February of the present year. It is a stove plant 1 foot high. Flowers white, bracteoles bright purple.—(*Ibid.*, t. 5248.)

DENDROBIUM LINGUEFORME (*Tongue-leaved Dendrobium*).

Nat. Ord., Orchidaceæ. *Linn.*, Gynandria Monandria. Native of Port Jackson and Moreton Bay. Not at all showy. Flowers ivory-white, expanding here in winter in an ordinary greenhouse. "Leaves very curious, thick, fleshy, and almost resembling pseudo-bulbs." It grows well on a piece of wood.—(*Ibid.*, t. 5249.)

ABIES DOUGLASI.

ON the 2nd inst., a flagstaff of unrivalled height and symmetry, made of the Douglas Pine (*Abies Douglasi*), from Vancouver Island, was erected on a rising ground in the arboretum of Kew. It is the gift of Mr. Edward Stamp, a gentleman largely concerned, in connection with Messrs. Bilbe & Co., of Nelson Dock, Rotherhithe, in the timber trade of British Columbia. It is only justice to Mr. Stamp and Mr. Bilbe to state that this is the second spar which they have presented. The first measured 118 feet long, 14 inches in diameter at the base, and 4 inches across at the summit. It was the largest pole adapted for a flagstaff that had ever been known in Europe, and it was sent as a specimen of the tree in question, smoothed and made ready for elevation, through the liberality of Mr. Bilbe. Unfortunately it sustained two accidents. On its way up the river it was cut in halves by a steamer, but taken back by Mr. Bilbe and repaired at his yard; and again, in the act of being erected, a rope gave way and it fell and broke into six pieces. On this disaster being communicated to Mr. Stamp, he promised, on his return to Columbia, to replace the loss with a spar of at least equal size and beauty; and in April of this year another was deposited by the same gentleman, free of all charges, in the Royal Gardens. It is of the same kind of Pine, but 41 feet longer—namely, 159 feet—and its diameter is 22 inches at the base, tapering regularly to 8 inches at the summit. There are two hundred and fifty concentric rings, or layers of wood, indicating as many years of growth; its weight is three tons, and it contains 157 square feet of timber. To rig and elevate his noble object the aid of the Admiralty was sought, and it

was immediately granted by the noble Duke who is at the head of that department of Government. His Grace gave instructions to Mr. John Isaac, the head mastmaker at Woolwich, and a sufficient complement of sailors and riggers, and the difficult task has been accomplished without the smallest accident. Many persons came to witness the interesting operation of raising so lofty a pole. The site is on ground about 15 feet above the level of the park, and at a suitable distance from the new "winter garden" now in course of construction. A cut was made through the side of the hill to its centre, into which the butt end of the spar was placed horizontally, and then, by means of a skilful arrangement of ropes, some being attached to sheers and others to several adjacent trees, this prodigious spar was hoisted in a few hours to a perfectly upright position, when it was found to be so absolutely straight that a plumb-line cut precisely through the centre of the butt end and the eap at the top. Flag-halliards and cross-trees had already been fitted; and a star, with reflecting facets and points, was affixed to the vane-staff. Being equal in height to the well-known Pagoda at Kew, this flagstaff may be seen, far and wide, and, if less conspicuous, it is far more graceful. The main object in erecting this noble spar is to illustrate the size, unrivalled beauty, and utility for naval purposes of the tree which produces it. The Douglas Pine abounds in all parts of British Columbia, including Vancouver Island, and has been known for many years in our parks and museums. A small-growing tree may be seen close to the entrance of the Royal Gardens at some distance, however, from the flagstaff, which is in the arboretum or pleasure ground. The latter, as is generally known, is open to the public from the 1st of May to the 31st of October, and the Botanic Gardens, with which it communicates, continue open through the year, Christmas-day alone excepted.—(*Times*.)

INSECT RAVAGERS OF THE ROSE.—No. 2.

(Continued from page 81.)

WE now come to the consideration of the insects which have been noticed injuring the flower of the Rose.

BALANINUS BRASSICÆ.—The petals of the Rose are often to be observed pierced by many very small holes. These are the work of the very minute Weevil, of which we annex a drawing magnified, as well as of the life size. It is of the same genus as the Nut Weevil (*B. nuceæ*), the larva or maggot of which feeds upon the kernel. This little Weevil with a palate more delicate feeds upon the Rose petals, although it more usually preys upon various parts of the Willow and garden pot herbs. It is no more than from one-seventh to one-sixth of an inch in length, including the long, slender proboscis, at the

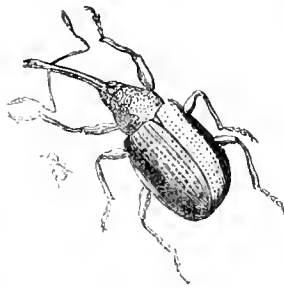


Fig. 4.

end of which are its little mischievous jaws. Its colour is black, with a slight ashy down on the upper surface; the scutellum, or little triangular piece placed between the bases of the elytra or upper wings is white, and so are the breast and under side. The proboscis is slightly furrowed longitudinally at the base, and from it near the tip proceed the antennæ, the basal joint of which is pitchy red and the remainder blackish, and minutely haired. The prothorax or shield of the upper surface of the shoulders is thickly and minutely punctured. The elytra has rows of indented dots with minute ashy scales in a double row between the dots. The legs are black; the thighs clavate or club-shaped, with a small, pointed spine beneath. Sometimes the antennæ are entirely black, and in other specimens entirely red.—(*Westwood*.) They feed on the petals at night, and we know of no remedy but spreading a white cloth beneath each bush, shaking it, and crushing the marauders that fall upon it.

EUPROCTIS ATRIFLVA (*Yellow-tail Moth*).—This caterpillar feeds upon the petals of Roses, although more usually upon the leaves of the Oak, Elm, Pear, and Black Thorn. It is black, with two red lines running along the back, interrupted on the fourth or fifth segments by a small hunch or tubercle. On the

ninth or tenth segments the red lines form two wax-like spots. A row of spots formed of short tufts of white hairs passes along



Fig. 5.

each side of the caterpillar, and beneath these rows a longitudinal red stripe.

The Moth appears at the close of July, and is a very common species. It varies from $1\frac{1}{4}$ inch to $1\frac{3}{4}$ inch across the fore wings when these are expanded. These, as well as the body

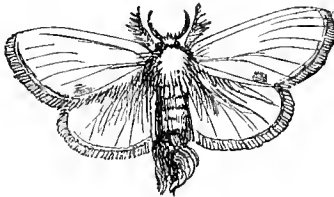


Fig. 6.

and hind wings are pure white. The end of the body and the branches of the antennæ are yellow. The male differs from the female in having the under side of his fore wings brown, and a small dusky spot near the hind angle on the upper side; but this spot appears also slightly sometimes on the female, as is shown in the annexed engraving. The female also has a large tuft of yellow, wool-like hairs, which furnish a coating for the eggs as they are deposited.—(Westwood.) This is not the Yellow-tailed Moth described by Kollar.

MELIGETHES ÆNEUS (*Brassy Meligethes*).—The two preceding species feed on the petals of the flowers of the Rose when fully expanded. The little insects now before us (fig. 5, k, natural size, one represented flying; and highly magnified in the woodcut, fig. 7) frequents the Rose for the sake of its pollen, which we have observed it in the act of biting off with its small horny jaws, and devouring.

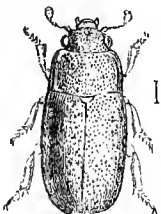


Fig. 7.

It measures a little more than one-twelfth of an inch in length, and has the upper surface of the body of a shining dark green colour, thickly covered with minute impressed dots, those on the elytra being rather larger than those of the head and thorax, the parts of the mouth are pitchy. The antennæ are black, the base slightly tinged with a pitchy hue, the prothorax and elytra have the

lateral margins slightly recurved. The legs are short and broad, the fore legs reddish, with the tibiae outwardly serrated, the four hind legs black. It is a very common species, and delights to fly in the hottest sunshine in the months of June and July amongst flowers.—(Westwood.)

VEGETABLE PRODUCTS OF THE HIMALAYAS.

(Continued from page 123.)

OUR next ground was up a lateral valley called Rhudagira, the stream from which joins the Ganges about two miles below the temple, on the left bank near Wilson's bridge. For about five miles the lower part on both sides was thickly wooded with Birch, some of the trees having had the bark stripped off to sell to the pilgrims by the villagers and the hill-men, who are engaged as porters by those who can afford that luxury in their pilgrimage. On some of the young trees the inner layers of bark are so fine as to resemble silk paper in texture, and in the higher hills it is very generally used as a substitute for writing-paper. Birch bark is one of the articles of hill produce exported into the plains, where, amongst other purposes, it is used in the manufacture of hookah snakes. On some trees there are upwards of twenty layers of bark, and when the trunk is free from knots it is taken off in one piece, which is sometimes 9 feet or 10 feet long and 3 feet wide, but in general the pieces do not average more than 3 feet by 1 foot or 2 feet. The inner bark of all adheres to the trunk, so that, though the outer is taken off completely round, the tree does not die, but for many years the bark is not renewed so as to be worth again taking off.

To about 11,000 feet or 12,000 feet, which is near the extreme limits of forest trees, the hills are everywhere well wooded, particularly on the northern and western slopes, which are almost everywhere clothed with forest of some kind. The opposite, the south and east, are more partially so, these sides of a hill being sometimes on the lower ranges nearly destitute of trees altogether. Commencing at the foot of the lower hills, we first find trees similar to those in the plains, and the forest here is only remarkable for the gigantic creepers. The common Pine then makes its appearance and is the principal tree, many hills in the lower ranges being clothed solely with it. The common Oak begins at about 4000 feet, and the Rhododendron the same. Between 7000 feet and 8000 feet the common Oak gives place to the Khuraoo, and at this elevation the trees of the colder European climates also appear: Chestnut, Sycamore, Box, Yew, Filbert, and others; besides the Rye and Morenda Pines, the pride of the Himalayan forests. The Cedar grows at almost all elevations; you find occasional groves as low as 3000 feet, but the great Cedar forests are not common at a lower elevation than 6000 feet. At 9000 feet Birch becomes prevalent, and a little higher, with the exception of dwarf Rhododendron, monopolises the forest. Above these come Juniper and a kind of Willow, with some other shrub-like bushes, till at 13,000 feet arboreous vegetation entirely ceases, and grasses, herbs, and mosses only are met with from thence to the snow.

The Cedar (*Cedrus deodara*) grows at almost any elevation and on any kind of ground; small groves or single trees being met with in the most widely different localities; in the low warm valleys and near the everlasting snow. Its favourite habitat is between 6000 feet and 9000 feet, and here only extensive forests of it are found. It seems to thrive best in a dry, rocky soil, and it is wonderful to see the places where some trees take root. In the perpendicular face of a smooth granite rock is a little crevice; into this a seed in some manner finds its way, vegetates, and becomes a large tree, flourishing perhaps for centuries where to appearance there is not a particle of soil, deriving sustenance probably from the rock itself. The Cedar grows to a great size, some having been measured with trunks upwards of 30 feet in circumference a yard from the ground. When in forest most shoot upwards in long, tapering, straight trunks, with rather short branches, and having the cone-like form of most Pines; but when scattered singly they often stretch out long massive arms, the ramifications of which being all horizontal, each with its foliage forms a surface almost as level as a table. The highest Cedars attain to a height of 100 feet. The wood is everywhere in the greatest esteem for building purposes, as it is easily worked, almost imperishable, and splits easily into planks—an indispensable requisite in a country where saws are unknown.*

* Since writing the above, I have found that the wood of the Cedar (*Cedrus deodara*) growing in the lower hills is much inferior to that near the snow, the latter being far more durable and of much finer grain.

The bridges over the Jhelum in Cashmere, which are constructed of this wood, are a fair criterion of its lasting qualities. Some portions are always under water, some only so half the year, and the rest always exposed to the atmosphere. These bridges have been standing for nearly a century, and are standing still, though so constructed that a few rotten timbers must of necessity cause the downfall of the whole. When subjected to the process by which tar is extracted from other Pines, Cedar wood yields a much thinner liquid, of a dark red colour, and very strong smell, known as Cedar oil. It is used by the Pularies as a remedy for the itch and other diseases of the skin, and all scrofulous diseases in cattle. The length of time this tree requires to arrive at even a tolerable size unfits it for introduction into other countries except as an ornament.—(*A Summer Ramble in the Himalayas.*)

(To be continued.)

TRADE LISTS RECEIVED.

Spring Supplement to Carter & Co.'s Gardeners' and Farmers' Vade Mecum.—Like a lady's postscript to her letter, this supplement is almost as bulky and as important as that to which it professes to be an addendum. It is of the same size as the Vade Mecum, and extends over fifty-six pages. It consists entirely of Bedding Plants, Fuchsias, Dahlias, Greenhouse, Stove, Herbaceous, and, in fact, all sorts of plants, and capital collections of them.

The Spring List of Soft-wooded, Bedding and other Plants, by E. G. Henderson & Son, Wellington Road, St. John's Wood.—An admirable catalogue, as all Messrs. Hendersons' are, and containing a fund of information about what are usually called soft-wooded plants. It contains some good woodcuts, among which are two good new things, *Epigynium leucobotrys* and *Convolvulus mauritanicus*.

WORK FOR THE WEEK.

KITCHEN GARDEN.

STIR the surface of the soil where the late rains have hardened it. Prick out all sorts of advancing seedlings that they may get stocky and strong before their final planting. Above all things, look after the slugs, which are very numerous this season; sprinkle the crop that they are most likely to attack with fresh slaked lime and soot mixed, and lay traps for them—such as rhubarb or cabbage leaves, slate, pieces of board, &c., and turn them over daily, when numbers will be found on the sides next the ground, and can then be destroyed. The Broccoli season being now nearly over, the stumps should be all cleared away and the ground dug, or if intended for Celery-trenches these may be prepared without digging the whole of the ground. Keep all the salading crops well watered in dry weather, or they lose much of their crispness. *Beans*, as soon as the pods begin to form at the lower part of the stem top the plants, which will greatly forward the cropping of them. *Carrots*, sow Early Horn, to draw young during the summer. *Cauliflower*, the early crop to be liberally supplied with water; manure water to be given if very large heads are required. *Cucumbers*, peg them down as they advance in growth under the hand-glasses; water to be given, when they require it, in the morning, and then only when it is likely to be succeeded by a fine day. *Parsley*, sow seed, and thin out the plants of the early sowing to 6 inches apart. *Peas*, at the time of sowing during dry weather water the drills after they are drawn, and before the seed is sown. *Savoy*s, prick out some of the earliest sowing. Shade with mats, if bright weather, for a few days until the plants take fresh root-hold. *Scotch-kale*, the same as Savoy's. *Spinach*, thin out the early crops, and sow again for succession.

FLOWER GARDEN.

It is advisable to fork up the borders after heavy battering rains. The Pæonies, Phloxes, Delphiniums, and other tall herbaceous plants to be properly staked. Thin out annuals. Remove all decayed leaves and flower-stems. Plant out on rich soil a good supply of Stocks and Asters for the autumn, and sow a succession of annuals for filling up vacancies that may occur. With the wind due north, and a fair prospect of a sharp frost any time, there is no great encouragement to commence bedding out in good earnest. It is to be hoped, however, that we shall have experienced a favourable change before the appearance of

this notice, and that the planting of all properly prepared stock may be carried on under favourable auspices. To begin with Calceolarias, Verbenas, Scarlet Geraniums, and leaving Heliotropes, Ageratums, and such things that are more susceptible of injury from frost, to the end of the week. A few spruce fir or other evergreen branches stuck in amongst the plants after bedding would be of service in protecting them from the drying effects of bright sunshine, and from any slight frosts that may occur. Verbena and other straggling plants that are liable to injury by being blown about by the wind to be pegged down immediately after planting out, and a good watering to be given early in the morning to settle the soil about the roots.

FRUIT GARDEN.

Continue to nail in the young shoots of all kinds of fruit trees as they become sufficiently advanced, and keep the finger and thumb at work amongst superfluous ones. Give the Strawberry-beds a slight forking over, and have some available material at hand for laying about them when the fruit is swelling, to prevent it getting splashed with dirt: straight wheat straw is often used, as are also spent hops. Remove some of the watery shoots from Gooseberry and Currant bushes.

STOVE.

Pay attention to the various young stock intended for blooming through the autumn and winter. The *Euphorbia jacquiniæ-flora* looks gay if planted three in a pot. The *Gesnera elongata*, the *Begonias*, some of the *Justicias*, and the *Geissomerias*, &c., are worthy of careful culture for the same purpose. The plants that are now growing freely will require attention in stopping, training, &c.; give them plenty of pot room, and all the sunshine that they will bear without scorching. The creepers to be looked over frequently to prevent their growth getting into confusion. Syringe, and shut up early in the afternoons of bright days, and be as sparing as possible in the use of artificial heat.

GREENHOUSE AND CONSERVATORY.

The Indian Azaleas that have been some time growing to be kept in heat until they have set their buds, when they may be removed to the open air to ripen the wood. Look well to the plants for summer and autumn decoration, and do not allow them to sustain a check for want of pot room or carelessness in watering. As the New Holland plants go out of bloom pick off the seed-pods, and cut the shoots back to form a compact plant; to be placed in an airy part of the greenhouse, and when the buds have fairly started, to be shifted, if they require it, into a larger pot, and then kept close for a fortnight to encourage a free root action. Shade *Pelargoniums* in flower, and shift and stop such as are wanted to flower late. Watch closely for insects, especially green fly and red spider, and act against them directly they are detected.

W. KEANE.

DOINGS OF THE LAST WEEK.

THE weather continuing dry, sowed more Beet and Early Horn Carrot for succession, Lettuces, Cauliflower, Peas, and Beans for ditto. Gave the final earthing up and spreading out to Cauliflowers that had been wintered under glasses, and now forward and coming in. Sowed Spinach, Turnips, and Radishes for succession; replanted and propagated hardy herbs; watered with soot water, about 70° in temperature, the earliest out-door Peas. Potted off, five in a twelve-inch pot, Dwarf Kidney Beans sown in boxes, to be grown under protection; also, potted a quantity, three in a four-inch pot, to be transplanted afterwards and be protected a little at first; those sown out of doors owing to the dryness not yet vegetating. Sowed also Scarlet Runners, and planted some thick in a reserve-bed to make use of filling vacancies, or to serve for additional rows. Cleaned and gathered from Kidney Beans under glass, and gave them plenty of manure watering, which is making old plants bear as well as new ones would. Pruned and thinned shoots in Cucumber-beds, and cut fruit before getting too large or old, the object being to have fruit crisp-eating, and not hard policeman's staves. Used the Dutch hoe freely among all growing crops—as Spinach, Asparagus, Seakale, Artichokes, and more especially among young Onions, Parsnips, Carrots, &c. Here the old proverb "A stitch in time saves nine," is well proved. A man will go over a great piece of ground when the seed weeds in myriads can just be seen by looking carefully along the ground; but it is a different matter when they get 3 inches or 4 inches high, or even higher than

that. Then the cleaning is, indeed, a disheartening work, and tells of false economy or bad management either in master or servant. The surface stirring is also of benefit in preventing the ground cracking, and lets the rain when it comes percolate nicely through the soil, instead of running off or bolting down the cracks. Thanks to the timely watering we shall have a good crop of Cabbages after all, though the quarter will not be so even as usual, which will have one advantage that the crop will come in more in succession, than even if the quarter looked better. Planted out Cauliflower and Cabbage, spring-raised under glass, for succession, and pricked out under hand-glasses in a border a few Cauliflowers from the open-ground sowing, to bring them a little earlier.

Ran the Dutch hoe through the rows and beds of Strawberries to settle all the seed weeds, and strewed a little powdery quicklime among them, expecting rain to come soon to wash its caustic qualities into the rich surface soil, and give many a worm and slug their quietus. So that at gathering time when the fruit is covered with nets we shall not be annoyed with seeing the best fruit crawled over, bitten, or hid with weeds, when it would hardly be safe to send active boys to pull them out without a trustworthy captain over them, to see they kept "whistling" all the time. Watered trees fresh planted, and syringed them twice a-day in the dry, sunny, cold weather, that kept drawing their juices from every pore. Removed evergreen branches from part of Gooseberries that seem now large enough to be safe. Currants as yet seem safe owing to the evergreen branches, but many places are but shades of what they were. Syringed with sulphur and soot water Peaches and other trees a little troubled with insects. Tried Gishurst for the first time on a few trees in pots, using it very weak, as much as a walnut to four gallons of water, and found that the insects did not at all relish it, whilst the plants were not at all injured. When people will put half a pound of soap, half a pound of sulphur, and half a pound of tobacco, all well boiled together into five gallons of water, and then speak confidently of its efficacy in destroying insects, I verily believe them, but should have no great desire to possess the tender plants from which the insects were removed. It is preferable to use weaker doses even if they should be repeated. I should consider an ounce of each for such purposes more than sufficient. Stopped and fertilised Melons, watered Strawberries in houses, adding a few more as room could be had, as when once used steadily to them employers do not like any stop or gap between the earliest ones in houses, and the earliest out of doors. Watered Vines in pits now swelling freely; watered Figs to prevent dropping; Peaches to assist swelling. Picked out a few small berries, and large ones too where too thick, in the earliest Vines, few laterals now appearing, all the strength going into the fruit; but what few appear allowed to remain to increase root action. Thinned evening and morning in the second house, and during the rains of Saturday all day, and tied out the late-house now showing bunches, removing redundant shoots, average temperature of late house from 50° to 55°, but will gradually raise it to 60° and 65°.

In the pleasure ground having some time ago mowed the lawn near the house, and a good swarth all round the sides of the walk, to prevent daisies or other beauties, but not desirable on walks, shedding their seed on the gravel. Owing to the dry weather let the mowing chiefly alone, and kept turning and breaking the soil in borders and flower-beds, and getting them all nicely edged ready for planting time, though they will, probably, get a turning a time or two before then. Lined out all the sides of the gravel walks that there should be no curves out and curves in to offend the eye in walking along them during the summer. Nothing is more distasteful to me than a deep raw earth-edge to a gravel walk. The earth a week or two after the lining should not be seen, and will not be if the turf is not more than from 1 inch to 2 inches above the gravel. This lining out with the line and cutting with the edging-iron, I consider indispensable every spring, as then the garden shears can manage all the edgings of the walks nicely all the summer afterwards; and the picking up the cut grass, and switching with a soft, moist broom, is more easily done when there is a firm, straight edge to fall back upon even though that edge be not seen unless you look for it. What may have to be removed, as little as possible, from the outside of the cutting-iron, is either moved with a draw-hoe first, or more generally taken up with a sharp spade, holding it obliquely to the edging and placed at once in a barrow, for we allow no heaps to be made to waste time in cleaning up their bottoms. Any weeds on the walk are picked up at the same

time, all black and greasy places where rain or snow had lodged, or where trees had shaded, is scraped with a draw-hoe as thinly as possible, so as to leave all clean, and thrown at once into the barrow, and then the walks are hard brushed with a rough broom, and when opportunity offers a sprinkling of fine gravel is thrown along each side where fresh cut, and a rolling given, which insures better walks with less trouble than digging and trenching them every year. I should have premised that the grass sides of the walks are well rolled before cutting, and as rolling the walks has a tendency to raise the grass at the sides by abutting against them, in rolling the grass the roller is allowed to hang 2 inches or 3 inches towards the gravel, which thus tends to keep the grass at the sides level and also firm to the edging-tool. And what comes of all these parings and sweepings? Thrown away, of course. Oh, no. This season there is a much larger heap of dead rose and shrub tops, prunings, &c., than usual at this time; these will be covered with these turf edgings, sweepings, vegetable stems, old used earth, and fire being set to the whole, we shall in ten days have a good heap of charred rubbish and burned earth in a nice warm state, just in prime order to mix with a little leaf mould and permit of a small handful of such mixture being given to bedding plants when turned out, so as to give them a good start at first.

These bedding plants are now the very *botheration*. Never did gardeners make such a scourge for lashing themselves withal. Go where you will you find that they must be had, and that, too, most generally entirely as articles of superfluity, without any separate means being set apart for them. Room, therefore, is ever and anon the cry, and to find room many begin to turn out in such haste as to have reason to repent at leisure. It is best to harden well off by degrees, and many things such as *Calceolarias* now require little protection; but the very fact of a sheltered place and standing thick together enables them to stand more cold than they would do when turned out singly in a bed or border a foot or more apart, and as yet unacquainted with their new habitat. A bed of *Calceolarias* thickly planted stood well on Thursday and Friday, the 9th and 10th, when we had from 3° to 5° of frost, with a few spruce branches stuck among them. Pricked out *Perillas* in celery-beds, and turned out many other things as *Lobelias* and *Geraniums*, protecting with an old sash or a mat, and exposing fully during the day. Potted Castor Oil plants and *Daturas*, and gave them a little heat. Sowed Balsams, moved *Brachycome*, *Chrysanthemum Burridgeanum*, *Lobelia speciosa*, *Convolvulus*, *Tropæolum*, &c., out of slight heat into slight protection, but kept a sharp look out lest such a Christmas air as the evening of the 10th did not interfere with them.

Syringed *Azaleas* and kept them close that had done flowering, hybrid tree *Rhododendrons* ditto. Moved *Fuchsias* to conservatory, kept *Cinerarias* and *Calceolarias* cool and moist. Gave plenty of air to *Pelargoniums* to insure the foliage being dry before the sun shone much on them. Gave manure water to those knotting for bloom. Shifted succession plants, gave larger pots to different kinds of *Scarlets* and pink *Geraniums*, &c., intended to bloom in-doors in autumn. Selected younger plants for potting to succeed them, and will do the same with the variegated kinds ere long. Shifted, also, *Fuchsias*, *Begonias*, and many soft-wooded plants requiring heat, and took care as much as possible to make sun heat serve the purpose needed by early shutting up, instead of burning coke or fuel when the sun could manage most of the work. Saturday, the 11th, the rain came in torrents, and potting, cutting tallies, making bushy branchy stakes for flower-beds out of larch and spruce prunings, were the order of the day. In exposed windy places these twiggy bits of branches are far better for flower-beds than any amount of straight sticks, the twigs holding the plants firm.—R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c."* 162, Fleet Street, London, E.C.

MELON PLANTS DAMPING OFF (*M.*).—It is very likely there is some parasitical fungus in the soil. If you do not grow in a pot remove the soil from the part and add fresh. But, after all, these maladies will happen do what we will.

INSECT ON ORCHARD-HOUSE TREES (J. F.).—It is the American Blight *Aphis lanigera*, and probably came to you on the trees. Remove them from the house, or the insects will migrate to others unattacked. Scrub the spots where the woolly matter appears with spirit of turpentine, but do not let it touch the leaves. The trees should not be returned to the orchard-house until all appearance of the insects is removed.

GRAPE VINE LEAVES DECAYING (G. F. D.).—These and the young bunches shanking, as well as the vigorous shoots gangrening, are evidence that the roots do not supply sap sufficiently fast to sustain the rapid growth now going on. Syringe less and only at night; give air freely by night as well as by day. The roots being outside are too cold, much over the roots at night, but uncover during sunny days. The Camellia leaves are stained brown like others we have seen where the roots have been sometimes too dry, and at other times too wet, whilst the leaves were constantly exposed to bright sunshine. The roots have been injured by that or some other accident.

DISEASED LEAVES AND FRUIT OF PEACHES (Four Years' Subscriber).—Fumigation will have no effect on such Peaches. They are suffering from canker, and from not having enough of sun to ripen the young wood the previous season. Under such circumstances the less syringing you give them the better. The fruit is approaching the stoning period, and the diseased and imperfect juices are unable to supply them with necessary nourishment. We can hold out no great hope even for next year, if the Peach trees continue much shaded during the summer. If put in a house by themselves we would prefer shading a little in very hot days instead of syringing them much, when the leaves fall off so easily. The Pelargoniums will do better in the cool house than in the hotter and more shady one. Most likely they would do better in a pit, or on a stand with a protection of calico or muslin over them or around them if there is no greenhouse. The Figs will ripen under the circumstances, but they will be deficient in flavour, and every year afterwards, with such shade from Vines, there will be less and less of fruit, owing to the leaves not getting enough of sun, and the soft state of the young wood. They will do best in the house with most light, but you must give no very sudden change of temperature, or it may cause the fruit to drop; it there is only from 3° to 5°, or so, it will not hurt them. The leaves of your Begonia are chiefly injured by your syringing and the sun shining upon them when wet. Avoid the syringing, and if you can raise the temperature to 60°, the fresh leaves will come nice and well coloured. Even under the best culture some of the lower leaves will begin to be a little blotched when very old, for all evergreen plants are so far deciduous; but your case gives unmistakable signs of the sun striking on a moist surface, and under a low temperature. These plants will do better under the shade of your Vines, and where the leaves shall have no moisture except what they condense from the atmosphere in which they grow. Your Gishurst Compound could do them no good whatever, but at 2 ozs. to the gallon might do them much harm. We detect not the slightest appearance of insect or mildew, and we have no faith in any medicine that will cure all diseases, all ills, and all mismanagement.

MELON (H. Helyer).—We do not know and cannot hear of such a variety as the *Muscatoello*. The writer in "All the Year Round" may be right in saying it is a red-fleshed Persian "superior to anything of the kind in juiciness and perfume," but we do not think it has been cultivated in England.

HEATING A GREENHOUSE—CUCUMBER CULTURE (A Notice who Wishes to Excel).—We do not think there is much the matter. We would have preferred the flue to run along the front of the greenhouse as well; but that would interfere with the heat in the forcing-house, if you grew Cucumbers early. We hardly think that at the distance from the flue which the slates will be, there will be great danger of burning the roots; but it would be as well to have 3 inches or 4 inches of open rubble, cinder ashes, gravel, &c., over the slates, and then with a small round drain tile or tube of any sort from 1 inch to 2 inches in diameter, one end resting on the rubble and the other above the bed, you could not only supply moisture beneath the plants, but by means of plugs in your tubes admit heated vapour into the atmosphere of your house at will. We allude to this because you do not mention any mode of giving atmospheric moisture except by a copper over the furnace at one end. If your flue is only open under the pathway, we think you will hardly have enough of direct atmospheric heat, and as you have a chamber we would have a sliding board a foot long and 9 inches wide in the centre of each side to let out the heated air when necessary. That, also, could be moistened by pouring water in the chamber, but not on the flue, or by evaporating-basins, or tiles on the flue. The heat you can prevent going up the chimney by having a damper close to the end of the flue in the chimney, but you must never have it quite shut. The back pit when not wanted for cuttings or low-growing stove plants might also be used for Cucumbers. We presume you train on a trellis, the best mode for such a place, and then the front pit will grow plants enough to cover all the roof. You must just risk the consequence if you grow Kidney Beans or anything else. If you just syringe and kept healthy there is little more danger than from other plants, but the more plants you put in your house as main crops, the less will you excel in individual things. You might have filled your chamber with loose bricks and stones, and concreted the surface, and thus saved yourself all the bother with supports and slates; but as the slates are there it would be a pity to make any alteration. All the varieties of the true Lion House Cucumber are short: 12 inches are a good size. Crosses with it, and smooth-skinned like it—such as Telegraph and Cox's Volunteer are long—say from 16 inches to 24 inches. The pointlessness may be owing to dryness at the slates and want of vigour, and the one can be remedied by making holes and watering, so as to be sure of reaching the bottom, and the other by manure waterings and rich surface dressings, as rotten leaf mould. Under your circumstances we think it would be waste to turn your copper into a boiler with hot-water pipes. If you had merely taken a short flue through the forcing-house, and built a brick stove in the house, with a small boiler as that used by Mr. Rivera, and lately described and figured by Mr. Fish, you might have heated both houses more satisfactorily; but there is nothing to prevent you doing so with the flue. For such forcing as Cucumbers, however, we would have preferred half of the flue next the fire, at least, being of brick on bed, instead of brick on edge. See what has been lately said and still to be said on Cucumber culture.

ROGG'S FRUIT MANUAL (A. B.).—There will not be a second edition for some time. It is impossible to say when. Your warning about sending fowls to London has given rise to a communication in our "Poultry Chronicle."

SMALL GREENHOUSE (Flora—, Kingsdown).—We have given all such information as you wish as to keeping plants even to repletion; but we would be glad to oblige you if you give us more data as to the space you can appropriate for such a purpose, and the attendings of the spot as to walls, &c. In our "Greenhouses for the Many" are full directions. You would see also in a late Number, page 99, how a correspondent built a small house and put his stovehole inside, but then that house would take up half your space of ground. Is there any means of putting a little pit close to the house, so that you might borrow a little heat from the kitchen fireplace? Where enjoying the house is the object, you ought to have a place that you can walk in, and be able to examine and do everything for your plants under cover. For such a small garden a well-lighted spare room would hold a great many plants; and with a fireplace in it, and a damper or register grate, shutting down the register at night within a quarter of an inch or so, a great many plants could be kept more safely, and with less trouble than in a pit. We last season advised a correspondent to turn a lumber, merely slated, garret into a greenhouse, by placing strong tiles of glass instead of slates on the roof, and using a small iron stove in the centre of the place in cold weather in winter. Before the winter comes we will do what we can for you when you give us more details, for after all we can only help those that are resolved to help themselves. When you write again do not leave anything out as if we should be able to recollect what you now tell us. You need not despair as yet as to the annuals, though in such a cold spring most of them would have done as well if not sown until the middle of April. We did not sow one until the end of the month. Your *Gilia* or *Collinsia* we presume have come. There are few *Daturas* that will come well this early. They should be kept in a frame until they are up. You may pot off singly your *Dianthus lacinatus* in small three-inch pots, using sandy loam and leaf-mould; and by the time the pots are filled with roots you may either turn them out in a row or in a small bed from 12 inches to 15 inches apart in similar well-aired soil, or you may transfer them to six-inch pots and bloom them in a window or balcony. If your annuals were sown in rows or in beds, in case there should be any breaks, if you have any seed left you might sow thickly in a bed in a warm place, and protect at night with a mat or a piece of calico. These could be lifted in little patches and used to fill up openings. See "Doings of the Week" for the new series.

VEGETABLE MATTER FOR PAPER MAKING (S. W.).—We submitted the Conferva to a papermaker, and this is his reply:—"This matter has no strength, consequently is useless for making paper. You will find if it is well shaken it will go entirely to dust."

STRAWBERRY PLANTS IN POTS NOT BLOOMING (M. A.).—The repotting should have been done directly, and so as not to disturb the balls. The accident however, though it might have interfered a little with the fruiting, would not have prevented the flower-buds showing if they had been there. We think you either encouraged the plants to grow too long in the autumn so that no flower-buds were formed, or they were so weakly as to be injured by the severe frost. We would plant them out, and most likely you will get a great crop next season even if they showed a few in the autumn. We have forced Admiral Dundas but little, but it would do for an orchard-house though we should not like it for early forcing. The *Carolina superba* we have never tried in pots.

ASPECT FOR GREENHOUSE—HEATING A PIT (J. Danvers).—See answer to "A NOVICE WHO WISHES TO EXCEL." If confined to a flue you had better have that go round two sides and one end of the house, a pit in the middle of 3 feet, and a bed on each side above the flue, with a chamber beneath: or the space filled with hollow stones and finer at the top to receive the pits for cuttings, &c. In either case it would be well to have openings for top heat. For Azalea forcing the flues would be sufficient without beds.

GRAPES AND VINE SHOOTS SHANKED (M. A. M.).—The reply we have given to others to-day applies to your case. The above-ground parts are made to grow faster than the roots can supply sap for their development.

POTTING—HEATING BY GAS (Nil Desperandum).—There is no such seeming mystery in potting. As a general rule, whatever the composition of the compost, fine, or rough and open, plants will grow most freely when not very hard potted; but they will bloom and fruit best when the soil is squeezed together as firmly as possible. When the sun causes the earth to shrink from the sides of the pot, stir the soil there to fill up the cracks, squeeze it down and add a little more at the sides, that the water may be thrown more to the centre. In extreme cases of dryness at the centre, and when the pots are large, set them overhead in a tub of water until no air bubbles come and a few minutes more; that will insure all the roots and soil being thoroughly wetted. For full directions on the e-matters, procure our "Window Gardening for the Many," price 9d. We are in possession of no such tables as to the comparative cost of heating small places by gas or stove. We would publish memoranda on the subject if given, though we do not attach much importance to them. We have not had great experience with gas ourselves, but knowing how easily it can be applied in many circumstances in towns, two friends obtained for us memoranda on the subject which we mislaid and never used, for the results were as wide as the poles asunder. On a little bantering cross-examination, it turned out that though both had used gas, and a small iron stove, the one made the stove beat the gas to nothing, and the other made the gas thoroughly victorious over the stove! We should be glad to receive broad data on this or any other subject as to heating, but after much practice and experience we have come to the conclusion that there is more in the manner of using the means than in the means used. One man will do wonders with an upright tubular boiler, a second is all for retorts, a third for cannons, a fourth for conicals, a fifth, sixth, and on to the dozen with the old saddle-back.

MUSCAT GRAPES SPOTTED (Titus).—This is always a symptom that the above-ground parts of the Vine are growing faster than the roots supply the sap required by such rapid development. Give more air and less moisture in the house, and keep the roots warmer and well supplied with tepid water. It may be that the roots have descended too deep, but of this we can give no opinion, but only draw your attention to the subject.

BEETLES ON POT VINES.—I was at Hatfield House the other day, and in a house of pot Vines I noticed a bunch of wadding tied round the stems. This was to prevent so far the ravages of a beetle, in stripping and boring the leaves. I enclose two.—R. F.

[The beetles sent are the destructive weevils, *Otiorhynchus vastator*. They must be sought for after dusk with a light. The wadding would be of no service except at the spot which was covered by it, unless it were daubed over with birdlime.—W.]

FRENCH-BORDER (F. A. C.).—The Verbena will be too high in front of the blue Lobelia, and you may reverse them. The styles of growth of the Verbena and Saponaria must then be the contrast. The rest are right, but Mr. Beaton says he never sent out a white Nosegay, and that the only white Geranium he raised that was good for anything, is the one called *Hendersonii*, and that there is no other white Geranium that is yet proved to be fit for flower-beds. Eight inches is a fair size for a white band of variegated Alyssum, 10 inches for the blue Lobelia, 14 inches for the scarlet Verbena, 18 inches for the Saponaria, 1 foot or 14 inches for the Calceolaria, from 1 foot to 18 inches for Tom Thumb according to the size of the plants, and 18 inches for the Heliotrope. But on a wide border these measures might each be doubled, and the arrangement would look better; there would then be double lines and double the number of plants even at the smallest spaces as above. The Lobelias and Saponaria seedlings should be in two rows to get the spaces filled up all the quicker. There should be no empty ground between ribbon-rows after the plants grow freely, and no one plant must be allowed to run into the next row as most Verbenas will do unless they are constantly looked after and trained within their boundary. Give any white Geranium 15 inches room only.

VARIOUS (An Old Subscriber).—Horseradish culture is given at page 42 of our No. 3. None of the birds or animals you mention will hybridise together under ordinary circumstances.

NAMES OF PLANTS (S. Devon).—No. 1. *Anthriscus sylvestris*. No. 2. *Euphorbia amygdaloides*. (*Harrie*).—*Smilacina bifolia*, called also *ma'aa*. *Thunberg*. (*A. B. Cole*).—Your plant is *Linaria cymbalaria*, or Ivy-leaved Snapdragon. You can be admitted a Fellow of the Royal Horticultural Society. The lowest annual payment is two guineas. If you write to "The Secretary, Royal Horticultural Society's Office, Kensington Gore," at once, you may be elected before the end of the month.

FLOWER SHOWS FOR 1861.

JUNE 5th and 6th. ROYAL HORTICULTURAL SOCIETY. (Plants and Fruit.) *Garden Superintendent*, G. Eyles.

JUNE 12th and 13th. YORK. *Sec.*, J. Wilson.

JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. *Sec.*, E. Carpenter.

JUNE 25th. ROMFORD. (Plants, Flowers, and Fruit.) *Sec.*, Mr. George Griggs, Romford.

JULY 6th. CRYSTAL PALACE. (Rose Show.) *Sec.*, W. Houghton.

JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) *Sec.*, W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. *Sec.*, E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. *Sec.*, W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) *Sec.*, W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

MAY 21st, 22nd, and 23rd. CHESTERFIELD AND SCARSDALE. *Hon. Sec.*, Mr. Thos. P. Wood, jun., Boythorpe House, near Chesterfield. Entries close May 1st.

MAY 22nd and 23rd. BEVERLEY. *Hon. Sec.*, H. Adams. Entries close May 4th.

JUNE 4th, 5th, and 6th. BATH AND WEST OF ENGLAND. *Steward*, S. Pitman, Esq. Entries close May 4th.

JUNE 19th. THORNE. *Sec.*, Mr. Joseph Richardson. Entries close June 12th.

JUNE 19th, 20th, and 21st. COALBROOKDALE. *Secs.*, J. B. Chuae, and Henry Boycroft, Coalbrookdale.

JUNE 25th. ESSEX. *Sec.*, W. R. Emson, Slough House, Halstead, Essex.

JUNE 28th. DRIFFIELD. *Sec.*, Mr. R. Davison. Entries close June 22nd.

JUNE 28th and 29th. TAUNTON. *Sec.*, Mr. Charles Ballance. Entries close June 14th.

JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. *Sec.*, Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.

AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. *Sec.*, W. Houghton.

SEPTEMBER 3rd. POCKLINGTON (Yorkshire). *Sec.*, Mr. Thomas Grant. Entries close August 26th.

SEPTEMBER 24th. BRIDGORTH. *Sec.*, R. Taylor, Bridgorth.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. *Sec.*, Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.

DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. *Sec.*, W. Houghton.

SENDING POULTRY TO THE LONDON MARKET.

WE did not enter upon the *vezata questio* of sending poultry to market till we had well weighed all the objections and difficulties. Their name is Legion. We encounter them every year at this season, after we have been trying to induce people to supply the need of London from the abundance of their yards; but we fancy we are very guarded. Two years since we explained the vocation and style of business of the "higler," and we then said, speaking of the London market, that they were essential to its

supply; and endeavouring to meet any objection that might be raised, we said, "wherever there are good fowls to be had, there will be found buyers for them, and as soon as there is a supply, there will be a demand." We have since said, that those who have but a few fowls every year cannot expect to be as successful, or to make as good prices, as those who live entirely by collecting and fattening fowls, and supplying the London market with them. Fancying few have ever had more, or as much to do, with poultry in every shape as ourselves, and knowing that it may be made more than an inexpensive pursuit, we "harp upon it" every year. We have always sought to render any disappointment impossible. To use Cobbett's words, "We have not only tried to make ourselves understood, but we have tried to make it impossible you should misunderstand us."

Markets for provisions are not as well understood in England, nor are they as much frequented as in France. With the exception of ladies who may go to buy a few flowers, or perhaps an idle man who may like to buy a piece of fish, markets are used only by those who trade in the wares that are exposed, and the reason is plain: they are the best judges of the article, and when a man becomes known as a buyer, he will find a middle man to be the most advantageous salesman to him. A market is for the convenience and benefit of the seller. There is fluctuation in everything, and however unimportant a week may be to a pig of iron or a bale of cotton, it is all essential to a side of beef or a hamper of fowls. The buyers in a market comprise all who deal in the article. Some buy only the best, others are content with mediocrity, while the last class buys anything and clears up every lot. These again come from different parts, and by these means they form the certain demand there is for every quality in a market. Where producer and consumer form "a league and covenant" to extinguish, discourage, and do away with the iniquitous middle men (like a family we knew where the members determined to eschew alum, potatoes, and baker's iniquities, and to have home-made bread; and where we used to see the funniest flat loaves, so close inside, that we thought, till we were corrected, they were American dampers. We were told the bread wouldn't rise, and when one day it was necessary to go out and buy a loaf, the children asked why they did not always have CAKE), one contracts to supply, the other to consume.

Now, let us suppose such an arrangement. The steward of a club, the manager of an hotel, or the head of a large family, undertakes to receive weekly or daily a supply of fowls from an amateur—eight, ten, twelve, or twenty couples per week. The producer is ready, and, let it be remembered, when fowls are fat, they *must* be killed, there is no such thing as keeping them in perfection. Well, there comes a note from the steward of the club, there is a threatened dissolution, all the members are off to the country; the manager of the hotel writes the house is empty; there is a death in the large family, there will be no company for some time, and, therefore, no demand for poultry. Or about the end of March producer having five or six weeks' consumption of winter fowls in process of preparation, is informed he must send no more of them, all the demand being for spring chickens—things he will not have for six weeks. On the other hand, imagine a royal marriage, christening, or some national fête, the opening of the Universal Exhibition, or some such thing. Purveyor receives notice, the demand is doubled, and he is obliged either to confess his inability to supply it, or he has recourse to the nearest market to eke out his supply. This is where we want to come—all these markets are feeders to the great market in London. From one person there is neither certainty of supply or demand, nor, were it required, can there be uniform quality. A market affords supply to one, it is an outlet to another. For instance, suppose a contract between parties such as we have described: the consumer is not to receive discoloured, broken, black, or yellow-legged fowls, nor must they exceed a certain size. There may be many such in a lot: they must go to market, and they will there find purchasers. It is supposed, and it is generally true, that those who regularly attend a market are thoroughly and practically acquainted with its usual contents. They not only know the buyers of the different qualities, but they know how to select and arrange the necessary lots. The higler attends the market, or goes his round, and, having made his purchases, he then sorts or lots his fowls according to their merits. Of forty-eight he makes four dozens, all differing not only in quality, but also in the price they will make, as much, probably, as thirty or forty per cent. between the first and last lots. He has bought twelve chickens of A. B. It is more than likely that they,

although of the same age and treated alike, will contribute to each of the dozens. In a local market the best alone would not realise their London value, private consumption will not clear all up, but sorted and properly arranged all will be sold in London.

The higgler not only has his knowledge of their quality, but he is also well acquainted with the form and times in which they are most saleable. It is his interest, almost his livelihood, to study these things, and they have their influence in enabling him to give more than those who lack his knowledge.

As we are not disposed to retract one word that we have written, we will sum up and leave the verdict for our jury. We have a feeling of impunity in doing so, as the law requires unanimity, and our jury is composed of thousands of readers. Our advice always has been to amateurs to feed and breed for the London market, but we also wish them to supply by means of the bigglers.

It is with selling poultry as with almost everything else, there is a beaten track, and money can be made only by following. "What can the king do that has not been done before?" There was a time when these complaints came from Lincolnshire, Wiltshire around Salisbury, Berkshire, the northern parts of Hampshire, and Essex. They have ceased, and all these places are now supplied with bigglers. Ask, Reigate, Horsham, Westerham, Croydon, Wokingham, Salisbury, and a hundred other places. Ask Boston, Louth, Spalding, and Bury St. Edmunds, what have been the prices of young poultry during the last three months, all given by bigglers, whether the regular demand has not created a regular supply satisfactory to all parties, and, consequently, a just one. An injured party is never satisfied.

Geese will never find the same certain market as fowls, if produced early. The expensive, and, consequently, profitable fowls are all eaten by the aristocracy, but Geese are not fashionable with them. The consumption of Geese in the spring as green Geese, and at Michaelmas as a national dinner, has diminished to less than a tenth of what it was, whilst in revenge the numbers eaten at Christmas would not be credited.

NAMING THE BREEDERS OF EXHIBITED FOWLS.

I SHOULD like, through your columns, if you think the suggestion worthy of a place in them, to propose to the managers of poultry shows, and especially to those of the leading ones, that exhibitors, besides describing the breed, age, &c., of their specimens, should also be requested to state, if possible, the breeder of them. It is done in the case of all other stock at agricultural meetings. It would, I think, encourage the sale of birds, as breeders would then retain considerable interest in the success of their birds even after they had passed into other hands; and it would afford reliable information as to where the truest and purest blood is obtainable.

If the Birmingham Council and the indefatigable Secretary of the Crystal Palace Show would introduce this new feature into their entry certificates I think it would add to the interests of the shows, and be of benefit to amateurs.—G. H.

PROFITABLE POULTRY KEEPING.—No. 5.

(Continued from page 106.)

To those who may feel inclined to try their hand at poultry keeping I would say, "Take care of your old birds." By these I do not mean hens of some three or four years, but those which may be falling off in productiveness, or that may have been disabled by accident but not vitally injured; for from these will be obtained the larger profits of their undertaking.

Put such at once up to feed, placing them in pens, or in any confined corners where they can be kept warm and dry, and feed liberally; and if the "cramping system" be resorted to, they will be fit to send to market as capon. A fowl of some eighteen or twenty months old, healthy, but worth little to sell—say 1s. 6d., may, by extra feeding and good management, quickly be made worth 5s. or 6s.

It is unnecessary to advert to the description of bird held to make the best capon; but, whichever it may be, breed and manage as now stated.

Beat equal portions of wheat and barley meal, and occasionally Indian corn meal, into a stiff paste with steamed potatoes. When the bird has eaten to repletion and leaves its trough, take

it firmly but gently under the left arm, with the left hand open the beak, and with the right place divers and sundry boluses of the same food at the root of the tongue, and the bird will continue to feed for some time longer. Use judgment, and you will soon know when to stay. Now endeavour to induce sleep by placing the head under the wing: and, giving the bird a few gentle waves or rocking motion in the air, place it on the perch, and darken the pen by any convenient means (nothing better than an old sack). This course of feeding must be resorted to often during the day, and the fowl must be kept well supplied with drink; and this should, if possible, be milk. Broth will do, but milk is to be preferred, both for fattening and for the colour of the flesh.

Should this plan be followed out on birds of from five to nine months old they will fatten more quickly, but the price obtained will not be much in advance of that for the older birds.—LEIGHTON.

P.S.—A few words as to the communication from "E. C. C." The balance sheet I will give *in extenso* when this series of papers is concluded, and I do not fear to meet the various objections urged by this writer. I will now take exception only to the conclusion of the first paragraph. I disclaim having put myself forward as an "authority." In my humble papers I have simply given the results of my own experience.

PIGEON-ROTTEN FEATHERED.

CAN you oblige me with a remedy for a Pigeon that has lost a great many feathers? and those she has left hang very loose, and come off on the least touch. Last summer she was almost naked, but kept in good condition, and went on breeding as usual. She is an Almond, and a valuable bird. I was recommended to give her a cold bath every morning, but the first almost killed her; and if she wanted a cold bath she would take it herself, as there is always water for them to do so.—L. A.

[Your Pigeon is what the fancy call rotten-feathered. I do not know of any cure, but fitness will most likely increase the disease. I would advise a less stimulating diet and the frequent use of the cold bath.—B. P. B.]

WATER FOR THE PARROT TRIBE—PRESERVING HAMS.

HAVING seen several articles in your Journal lately on Parrots, I fancy I may add a little weight to "E. H. D.'s" testimony in your last Number, by stating that I have had a Parroquet (which I presume to have similar habits to the Parrot) for twenty-three years, and it has invariably been indulged in a soup-plate of water for a bath, its cage door almost always open for it to come out, and having also a large saucer of water inside its cage. I might add that its food has been hempseed in one tin, and sopped bread in another, with a bit of everything that it sees any one eating (which it is sure to ask for in its way). Fruit of every sort it is very fond of, particularly oranges.

To Preserve Hams.—In reply to "A CONSTANT SUBSCRIBER" (Journal of 7th May), also, I would suggest his putting them into malt dust or "cums," taking care they are well covered, but this is no use if the enemy has deposited his eggs before, and great care ought to be taken that the hams do not lie about before going to be smoked, as also after they are sent to the smoking-kiln. The malt dust ought to be fresh, and from high-dried malt if possible. All placed in a box or tub in a dry place and kept off the floor a few inches, covered also on the top.—OBITER DICTUM.

I USED to apply a mixture of one stone and a half of common salt, half a stone of coarse brown sugar, half a pound of saltpetre, and, perhaps, as much black pepper, about two stones in all, to fifteen or sixteen stones of pork, turning the hams and rubbing them afterwards, and then smoking them with sawdust of fir wood. I have been quite as successful with a friend's receipt, which makes the salt one-half bay, and one-half common, adding treacle instead of sugar, and applying it at the end of a fortnight, turning and rubbing the hams twice a week during that fortnight, and also for a fortnight after, and washing them with lukewarm water before hanging up to dry. This receipt contained also saltpetre and pepper, but no smoking, which is a matter of

taste. Rubbing is a great matter, and turning each time. The winter months are, of course, the proper season for curing, as there is less risk.—A. S.

NEW BOOK.

BIRDS' EGGS AND NESTS.—We deprecate without any reserve the confinement of our native birds in cages and aviaries, for we look upon it as needless and indefensible cruelty, and we fully sympathise with the kind-hearted sanguine-temperamented gentleman who, regardless of consequences, and defiant of opposition, seized upon every Lark's cage that came within his reach and liberated the bird it confined! But we have not such repugnance to the taking of birds' eggs. It does not cause the parents much vexation—it is not cruel, like robbing them of their young—or, at all events, the vexation is very transient, for we have known a pair of Sparrows whose nest was taken on Monday, at work energetically constructing another on Tuesday morning. Besides, it is necessary to check the excessive production of birds as of all other animals, and the most humane way of doing so is by depriving them of their nests and eggs.

Nor need this minor branch of fowling be mere wanton destruction. Every one has a taste for collecting something, and we have seen this taste for collecting the eggs and nests of birds result in one of the most interesting of museums, and in a deep knowledge of birds and their habits acquired by their collector and arranger.

The nests of each family of birds, the Falcons, the Owls, the Finches, the Crows, &c., were grouped together; each nest was in a glass case, and in accordance with the place where it was found, whether in the branch of a tree, in the ground herbage, or elsewhere, copied exactly from Nature. Each nest contained its appropriate eggs. Each case was numbered, and the collector's M.S. catalogue under the corresponding number told where and in what month it was found, with notes relative to the parents' habits which the collector had observed. In each case, also, was a label containing the scientific and popular names of the bird of which the nidification was there.

The little volume before us is a very cheap and very trustworthy aid to any young person wishing to commence such a collection. It contains descriptions of the eggs of all British birds, whether constant denizens or migratory, and drawings of about 120 of them, the place where their nests are built, their form and other brief particulars.

One extract will at once enable our readers to appreciate the contents of the work:—

“OSPREY (*Pandion haliaetus*).

“The Osprey or Fishing Hawk, or Mullet Hawk, or Eagle Fisher,† builds its nest sometimes on a tree, sometimes on some part of an ancient and deserted building—always on the highest part, a turret or chimney for instance—and sometimes on a rock or precipitous scar. But a very favourite and almost characteristic site—speaking of the bird only as a British bird—is on some lone insular rock in a wild mountain loch in Scotland. I extract a very striking description from ‘St. John's Tour in Sutherland:’—‘The nest was placed in a most curious situation. About 150 yards from the shore there rose from the deep water a solitary rock, about 10 feet high, shaped like a broken sugar-loaf or truncated cone. On the summit of this was the nest, a pile of sticks of very great depth, evidently the accumulation of many breeding seasons, as the Osprey returns year after year to the same nest. How this heap of sticks withstood the winter gales without being blown at once into the water puzzled me. * * * The female Osprey allowed our boat to approach with 200 yards or so, and then leaving her nest sailed onwards with a circling flight till she joined her mate high above us.

“Having reached the rock, and with some difficulty ascended to the nest, our disappointment may be imagined when we found it empty. From the old bird having remained on so long, we had made sure of finding eggs in it. The nest itself, however, was interesting to me, perched as it was on the very summit of the rock, and composed of large sticks,‡ every one of which must have been a heavy burden for a bird of the size of the Osprey.

* *British Birds' Eggs and Nests*, popularly described by the Rev. J. C. Atkinson. Illustrated by W. S. Coleman. London: Routledge & Co.

† A translation of the Gaelic name of the bird.

‡ Some of the sticks, or rather branches, employed, are said to be $1\frac{1}{2}$ inch in diameter.

“In the centre of the pile of sticks was a cup-shaped hollow the size of boy's cap, lined with moss and dead grass, and apparently quite ready to receive eggs.’ ‘In another nest,’ says the same author, elsewhere, ‘we found two beautiful eggs, of a roundish shape: the colour white, with numerous spots and marks of a fine, rich, red brown.’

“The Osprey is met with from time to time in almost all parts of the kingdom, but more especially along the east coast; but it is known to breed nowhere in England now.”

WHITE FILM ON GOLD AND SILVER FISH.

HAVING seen an inquiry in THE JOURNAL OF HORTICULTURE, No. 3, by “A. B.,” asking for information about Gold and Silver Fish. He details their diseased appearance, and asks for a remedy. As I have a great many, and they were affected in the same way for the last three or four years. The first two years I lost a considerable number, and I puzzled over the subject a good deal. I found on catching the diseased ones, and putting them into a basin of clean water, and allowing them to stand on the hob of my fireplace, that they soon recovered.

But this did not stop the disease in the pond, which soon attacked others. I bethought me that it might be possible that the frogs had something to do with it, either by licking the fish, or the fish eating the frog-spawn, as the disease always begins at the time the frogs go into the water to spawn, so the last two years I had the pond emptied, and the fish caught, and put into a watering-pot until the pond was thoroughly cleaned out, all the frogs being caught, and committed to a hole filled with quicklime. After this the fish were returned to the pond, and the disease disappeared.

This spring I had one fish diseased. We set to work and emptied the pond, and destroyed the frogs, and had no more diseased this season.

Three years ago, when I called at Hampton Court Gardens, I saw all the fish in the most miserable condition, and at the time the pond was full of frog-spawn and frogs. I think if your correspondent will try the expulsion of the frogs he will save his fish.—JOHN SCOTT, *Merriott, Somerset*.

LUSUS NATURÆ.—A Pigeon was hatched recently in the collection of J. Rucklent, Esq., Grove End Road, Lisson Grove, having two heads and necks rising from just above the crop.

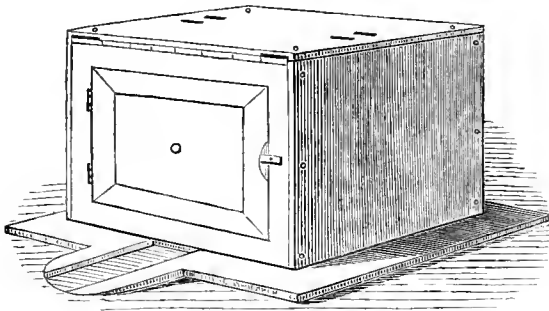
NIGHTINGALE—CUCKOO—SWALLOWS.—In compliance with “H. R.'s” request in your last Number to be informed of the first appearance of the Nightingale and Cuckoo, I have much pleasure in telling, that the first was heard by me so late (not until the latter end of last month) that I took no note of the time; but the second, the Cuckoo, I heard in the neighbourhood of Reading on the 4th of April, and the first Swallows were seen by me at Reigate on the 11th of April.—F., *Redhill*.

BEEES IN THE HIMALAYAS.

BEEES are pretty generally domesticated in the middle and higher hills, but are rarely seen in the lower valleys. If a little care and management was bestowed on them they would be very plentiful, and might be a source of considerable profit. The domesticated bee in the villages of Gurwhal, and the wild one in the forests, is one and the same insect, and swarms often come from the forest into the houses, and leave the houses for the forest. Those that may be called domesticated are kept in the walls of the houses or outbuildings; but no trouble is taken with them, the young swarms even being left to go where they like, and the only time a Puharie ever troubles himself about his bees or their hives is when he takes the honey. In building a house, or any substantial outbuilding, small oblong apertures are left at intervals in the walls, generally of the lower story, about 12 inches by 9 inches. An oblong piece of board, with a small triangular hole in the centre, secured in the wall while building, closes the aperture outwardly; and a similar board without any hole, and made so as to be removed at pleasure, serves a similar purpose inside. Six or eight of such hives is the usual number made in a moderate-sized house. Sometimes a portion of the hollow trunk of a small tree, if a hive can be found adapted to the purpose, is made into a hive by closing each end with circular pieces of board, and building it into the

wall. All is now left to chance for swarms of bees to take up their abode in the hives. They may all get occupied, or only two or three, or perhaps none. To take the honey the board which closes the hive inside is taken off, and a piece of ignited dry cowdung is held inside, and soon fills it with smoke. The bees hurry out and the combs are separated from the roof of the hive with a knife, and drop into a dish held beneath to receive them, scarcely a single bee being killed. The board is then put in its place, and, as soon as the hive is free from smoke, the bees, which have been during the time clustering to the wall outside, re-enter it. The hives are taken twice a-year, in May or June, and September or October, but are sometimes opened to take out a small quantity in the interval. The honey taken in spring is very dark-coloured, rank, and of a disagreeable flavour, while that taken in autumn is white and of excellent quality. In the forest the bees make their hives in hollow trees, and sometimes in the cleft of a rock, and a great many of these wild hives are found and taken by the villagers.—(*A Summer Ramble in the Himalayas*.)

NEW BAR-HIVE.



I HAVE been favoured with the following sketch and description of a bar-hive which has been in successful operation during the last four years, and which especially commends itself to the attention of such amateur hivemakers who find that nails will not answer for bar-boxes, whilst dovetailing may possibly be beyond their skill.

The concluding note replies to such queries as suggested themselves to—A DEVONSHIRE BEE-KEEPER.

Size.—Inside measure 12½ inches by 12½ inches.

Back, front, and sides.—One-inch stuff; window back and front.

Top.—Three-quarter-inch mahogany 14½ inches by 14½ inches.

Bars.—Three-eighths-of-an-inch mahogany, in two pieces, fastened together with two brass screws well greased, the top piece 14½ inches by nine-sixteenths of an inch, and the bottom or comb-bar 12½ inches by seven-eighths of an inch.

The two sides will be 11½ inches wide; the back and front 12½ inches wide, and in depth three-eighths of an inch less than the sides.

Glazed with two panes of glass about one-eighth of an inch thick, 12½ inches wide at top, and 12½ inches at bottom, depth three-eighths of an inch less than the back and front of hive, pushed into grooves in the sides of the hive. The extra quarter inch in width prevents their falling through when the hive is moved before the bees have fastened them.

Openings for working-glasses and supers are in the top of the hive at the sides, as I find this arrangement interferes less with the honey storing and breeding than openings in the centre; the two outside bars have the top cut away down to the comb-bar.



Slides.—Space for zinc slides cut out of the top of the hive.

In removing bars in warm weather a knife is seldom required, as the uniformly smooth surface presented by the glass back and front will generally allow the comb to slide up the glass upon gentle force being exerted; but should it be necessary to use the knife, the two brass screws in the top of the bar will easily draw,

and the top can then be pushed either backwards or forwards sufficiently to allow the knife to be inserted, the screws then replaced and the comb removed with facility.

In reply to your queries, which I will take in the order that you make them, I have to say—

1st. That the moisture does condense on the glass at back and front, but if the hive be set on a gentle slant it runs to the floor-board and quickly out at front.

2nd. As respects protection, I have to acknowledge with shame that I deserve a very different fate from what I have experienced this winter, for I was too lazy to set up a covering which a storm in the autumn upset, and, consequently, my hives have been exposed all the winter, and yet I have not lost any of my stocks.

3rd. I cannot say that expansion of the woodwork does not take place in the winter; but if so, the summer sets all right again, and I have never suffered any inconvenience from this cause.

4th. The bees do sometimes cement the top-bars, but they are easily divided with a knife.

5th. If you will refer to the description forwarded to you, I think I have there stated that the glass sides (one-eighth of an inch thick) are carried up to within three-eighths of an inch (the depth of the bars) of the top of the back and front, thus leaving a glass ledge for the bars to rest upon should the screws be withdrawn.—E. H. B.

THE WOODBURY COMB-BAR.

IN page 389 of our last volume we inserted a communication from "A DEVONSHIRE BEE-KEEPER," describing this improvement on the ordinary comb-bar. To those who cannot obtain guide-comb for starting swarms in bar-hives it will prove very acceptable, whilst as an adjunct to guide-combs, it is also valuable in producing greater regularity in the construction of combs than is usually attainable.

The following illustrations show how the "Woodbury Comb-bar" has been adapted by Messrs. G. Neighbour & Sons to Taylor's amateur bar-hive:—

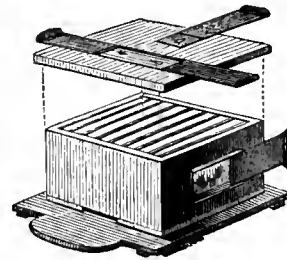


Fig. 1.



Fig. 2.



Fig. 3.

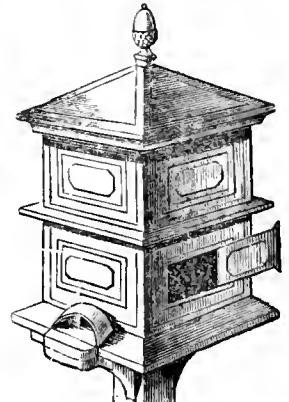


Fig. 4.

Fig. 1 is a representation of the stock-box and floor-board with the crown-board elevated to show the bars in their places, and the slides and window shutters withdrawn.

Fig. 2 is the improved comb-bar in perspective, whilst Fig. 3 represents a transverse section of it.

Fig. 4 shows the hive with honey-box and roof complete.

We can recommend these hives as being moderate in price, and well adapted for the use either of the amateur or the scientific apiarian, whilst the well-known character of Messrs. Neighbour & Sons, is a sufficient guarantee of good materials and workmanship.

ADVENTURES OF A LIGURIAN QUEEN.

THE following interesting letter from your esteemed correspondent "B. & W." details the adventures of the first Italian queen bee which I have succeeded in raising this spring. I am sure all the apian readers of the JOURNAL OF HORTICULTURE

will anxiously await the sequel to the "Adventures of a Ligurian Queen."—A DEVONSHIRE BEE-KEEPER.

"May 13, 1861.

"MY DEAR SIR,—Your letter of Friday announcing the departure of the Italian queen took me greatly by surprise on Saturday morning. It was a miserable day throughout, very stormy and wet and cold—in fact, here it was blowing a hurricane, which strewed my garden with the leaves and branches of trees, &c. However, I sent off a man on foot six miles to H— after his dinner, and in the meanwhile I myself successfully effected the formation of an artificial swarm in my bee-house without any trouble out of my strongest stock. It was very full of bees, all of which were at home, and in a very impassive state. You will understand that I drove the bees from their upturned box into an empty one of the same size placed over them. A fair-sized swarm ascended after the queen in five minutes, leaving a large population still behind. I never knew bees so quiet; only one attempted to sting, which I accidentally squeezed with my glove. The door of the bee-house being open, the few bees that rose found their way, I hope, to their old home ultimately, although the storm without was scarcely resistible by a bee on the wing. All was over, and the two hives in their respective places by three p.m. The old hive is in its old place, the other one (the swarm) close by on the same shelf, but shut up, as I was anxious to be certain I had got the queen with them. I can at any time close the communication between any of my hives and the open air by simply sliding them, board and all, a little to the right or left of the aperture through which they descend into the sunlight.

"It was not till five o'clock that my man returned from H— with the little casket containing the Italians. On substituting a piece of glass for the unscrewed lid the travellers were discovered hanging in a state of chilled repose from the bit of network which contained the food with which you had supplied them. You have adopted an excellent plan for their travelling comfortably and safely. The queen was the liveliest of them, and an unmistakable Italian; but I thought her small*—smaller in proportion than her subjects, which certainly appear larger than our English bees.

"Acting on Huber's experience, I thought it advisable to wait twenty-four hours before attempting to give the new queen to the hive which had lost its own. It was accordingly about three o'clock, p.m., the following day (yesterday) when I introduced her to her new subjects. Everything had been got ready beforehand, so that when the time came I had nothing to do but to withdraw a zinc slide from the hole at the top of the hive. For I had placed the little casket close to this hole, resting on one of its sides, and open to the hole. Over all was placed an empty box with glass windows, through which I could watch all that was going on.

"I should mention that I had previously drenched the Italians with richly-sugared water (bee food), and poured a quantity of this over the top of the hive, so as to divert the attention of the English bees, and prepare them to receive the new comers kindly. Everything at first succeeded as I could have wished. No irritation was visible on either side. The bees fraternised amicably as the Italians gradually roused from their state of torpor and became warmed by the genial air from the hive below, some of them even descended into the hive. All this, however, took up some time, till, getting impatient to see how the young queen would be received, I stirred them up with a bit of tarred string let down through an aperture in the top of the covering-box. This caused her Italian majesty to disengage herself from her own people, upon which she was immediately laid hold of by one or two English bees, and dragged down into the hive in spite of all resistance on her part; for she was in full strength apparently, and managed to get away from them once at least. And now all was changed. The hitherto peaceable hive was thrown into utter confusion—so much so that I doubt if the bees had yet discovered the loss of their old queen. That they were aware of it now there could be no doubt, as they shortly set up that joyful hum with which you are familiar, after a frantic rush of the bees all over their combs. This hum leads me to hope that the Italian queen may have been ultimately set at liberty and enthroned; but I know nothing of her fate. As to her former subjects a general massacre of them took place immediately after their queen had been seized, and their dead bodies continued to be dragged out of the hive for

an hour or two afterwards. It must have been half-past three o'clock, p.m., when the queen was carried down, but the hive continued in a highly disturbed state all the evening; as was still the case when I inspected it at nine o'clock for the last time. This morning, however, all was tranquil, and the bees have been busily at work carrying in pollen in large quantities, just as if nothing had happened. It only remains for me to wait patiently till I can catch sight of the queen, or see some of the future progeny of the hive.

"I should mention that this hive had several drones in a high state of vigour yesterday; but the bees of all my other hives have got rid generally of their drones this cold week.—Yours truly, B. & W."

HOW TO CURE AND PRESERVE HAMS.

IN answer to "A CONSTANT SUBSCRIBER" relative to the preserving of hams and keeping the "jumpers" from them, I will, with your permission, go before and beyond the question—first by giving directions for cutting up my pig and then salting him.

For good bacon, and in defiance of the vermin, I have successfully adopted the method during twenty-seven years. It is a Shropshire plan, generally performed in the surrounding country about Ludlow, and it is one I intend to use to the end of my chapter. Should I require a good second to the advice I am about to give, I would appeal to Mr. Beaton, as one not likely to have let slip an opportunity of making himself acquainted with so important a subject when he lived in the neighbourhood and cut down old apple trees there, which I did myself on the other side of the Thame about the same time; though, instead of consigning me to where they would him, the "old women" convened in an opposite and Don Giovanni sense of the word—to drive me out of the country altogether!

But to my pig. Place him on a bench with his back downwards, and, taking as a guide the sticking-place, cut its head off, plying the knife just behind the ears where there is a joint. Then turn the pig on its belly; and with a line chalked and strained, form a straight mark centrally along the backbone the whole length of the pig, and, following the mark with the knife, cut down to the bone. Then turn the pig again on its back, and cut through what little flesh there is on each side the backbone, to facilitate the operation of cutting it out, which is partly or wholly done with a cleaver by separating the ribs on each side. Detach one side or flitch, and lay the side with the backbone on the bench, and remove the backbone. Commence cutting shallow over the shoulder to remove the spareribs and lean meat adhering, remembering to leave a very thin portion of lean upon the fat of the flitch. Cut the ham from the flitch in a decided and rounding manner, and saw off a small piece of the bone that protrudes from its centre. Cut off the "whip,"—a thin piece of fat and rind from the neck in continuation along the belly of the flitch, to give it a neat appearance; odds and ends of which, wherever from, if fat, to become melted with the lard. Cut the feet off a little below the knee-joints, and trim off what appears uneven upon the ham and shoulder. Cleaver the backbone into three or four lengths, and operate on the other flitch as before. Now take the head. Cut from the centre of the jaws, guiding the knife just below and to the back of the ears, to facilitate the separation of the cheeks from the jowls, which is completed with the cleaver, cutting the whole of the upper part of the head from the lower part. Extract the tongue with the knife, and with the back of the cleaver crack through the lower jaw 4 inches from its extremity, flea it up with a knife, and cast that part of the detached bone to the dogs. Cut the snout away entirely just under the eyes with the edge of the cleaver. Then cleaver through the head midway between the ears; take out the brains, put them in a basin of water, and cleaver the bones away under the ears, to the degree that the finger may be intruded beneath the sockets to force out the eyes preparatory to their extraction; and, as a finale, cut off the ears, and trim from them extraneous matter, hairs, &c., and allow the feet to undergo the same operation. Keep a cloth or two at hand, and allow all the evolutions to be conducted in a clean and orderly manner.

And now specially for "CONSTANT SUBSCRIBER'S" question. Suppose two hams weighing 34 lbs. Lean them on end, hooks uppermost, as soon as the pig is cut up, for three or four hours or so to drain the blood from them. Then with a cloth press firmly from the rind obliquely up the face of each ham, and what blood is perceived to ooze from two veins situated, one

* She is really a fine young queen. All queen bees increase very considerably in size after they begin to lay eggs.—A DEVONSHIRE BEE-KEEPER.

quite and the other nearly centrally, wipe away with a cloth. Continue pressing so long as blood continues to appear, and take particular notice where the veins are situated. Now turn the hams on to their faces, and, with a hard dried lump of salt, rub their rinds for twenty minutes; turn them then, and place them on the station, whether of wood or stone (stone is best) which should slope slightly to allow the brine to run freely away as the salt liquifies. Then press with the fingers a little ground black pepper into the openings of the veins, and around the central bones; also press some well in at the hocks where the feet were cut off: this prevents the weevil—a small black fly which appears about March—using these places as its egg-depositories, to become colonies of maggots to penetrate and spoil the hams, but they cannot become life in pepper.

Having previously mixed and dried before the fire 2 ozs. of saltpetre, and about 4 ozs. of moist sugar, with a few pinches of pepper, divide it into two parts, and spread it on the face of each ham most bountifully on the thickest part; rub it in slightly with the fingers, reserving a pinch for the end of the hock. Now lay on the salt (which has been previously rolled and dried by the fire) half an inch thick over the hams, even to the hocks, at which places press in as much as possible. Smooth all over with the palms of the hands, and leave them in a workmanlike manner. Attend to them every other day; and on those parts from which the salt has disappeared add more, and so on for the space of a fortnight. The exact proportion of salt to advise is difficult to arrive at, as this depends so much upon the weather, which it happens to be frosty, the salt remains in its unliquified state so much longer; but as a rule, in which one cannot err, cover the bacon entirely, and as it wastes still add more salt. The larger the hams are, in proportion, so much longer time will they take in the process of salting. If they are a third heavier than those specified, a week longer will be required. If double the weight, about six weeks; though, in either case, they will require resalting but once entirely, dividing the time in each case as a medium to do this. And now supposing our limited fortnight to have expired, clear off the old salt from our 34-lb. hams, and “dab” them with a dry cloth till they appear tolerably dry, at the same time wiping beneath the place whereon they rested; after which, with plain salt only, allow them to undergo the operation as at first. Attend to them another fortnight, and then another clearing-and-dabbing operation, with the addition of a little flour dredging for appearance’ sake; which done, form a coarse piece of brown paper bagwise over the end of each hock, and noose it around with a stout piece of cord, which will form a loop to allow each ham to become suspended from hooks on a beam near the ceiling of the kitchen during their drying process, and so far from the fire and heat that they may not become rusty in consequence. The thermometer on our beam now as I write is at 60°; 75° it arrives at occasionally, but beyond that, as a permanency, is too hot. At the latter end of May I shift my bacon into a spare north garret, suspended on hooks where the temperature ranges about 60°.

In a period of three weeks or a month, or otherwise, so soon as the hams appear quite dry, and the saltpetre glitters upon them, envelope them in calico bags or something of that sort, and tie the bags tightly around the loop-suspenders as a preventive for dust and a caution against the fly, upon whose account take off the bags every month or six weeks and examine for fear of an intruder, as they are very insinuating, and great epicures, always preferring the hams to the shoulders or the flitches, though in default of the former attacking the latter: therefore, allow the eye to rest on them also. As soon as the bags are put on the hams will do to cook; but that is bad management, they are better and mellow for six or nine months’ keeping. I have kept flitches even for two years, and at that period of time the bacon was excellent.

The process of salting a whole pig is similar to the above, with this exception—not quite so much of the sugar-and-saltpetre mixture is required for the flitches, and on the fat part a mere fractional part will require to be sprinkled. Where the flitches lap over the shoulder-hocks introduce as much salt as possible at those places, otherwise they are apt to taint there. Lay the flitches as flat as may be, one on the top of each other, a shoulder at each extremity. The cheeks, faces, tongue, feet, backbones, &c., introduce between the flitches towards betwelling their courses, after having rubbed them with salt; and should there not be room on your salting-alone or board, I do my salting in an old beer-cooler, from which I catch the brine and toss it into the

liquid-manure tank. Place the hams on the top of the flitches. The spareribs may be salted or not, proportionally as they are required for consumption. On resalting place uppermost the flitch which was lying below.—UPWARDS AND ONWARDS.

VARIETIES.

FIXING SHIFTING SANDS.—In certain places on the seacoast, where the usual means employed for fixing the shifting sands, or dunes, have failed, such as planting the maritime Pine, certain kinds of Grass, Acacias, &c., it has been found that the *Ailanthus* is perfectly successful, even in the most arid places. A land-owner near Odessa, has for the last sixteen years planted a considerable extent of surface with this fast-spreading tree, and an almost impenetrable forest exists, where formerly was only a dreary, barren waste.—(*London Review*.)

TO UNITE STONE AND GLASS.—M. Bru, curator of the museum at Narbonne, has discovered that silicate of potash possesses, in the highest degree, the property of uniting surfaces of stone, glass, and pottery. It is applied with a brush to the surfaces which it is desired to bring into contact, and in a few days acquires a great solidity. It appears that the same material can also be successfully used in joinery, and for all the purposes to which common glue is applied. This discovery, which promises to be of considerable importance, was announced by M. Bru to M. Figuler, the editor of *L'Année Scientifique et Industrielle*, in the volume for the present year.

THE SOCIETY OF ACCLIMATISATION is more busy than ever. At its late meeting the contribution of a new silk-spinning worm, by Madame Drouyn de l’Huys, was hailed with great applause. The worm can be reared and fed in the coldest climate, and although the silk spun is of a coarse quality, its strength and durability are pronounced marvellous. Madame de Montesue also received the hearty thanks and congratulations of the Assembly for her donation of two Sugar Maples from Canada, with a memoir of her own experience on the cultivation and perfection of that tree in France. This lady has successfully established the possibility of producing sugar from the Maple in our climate, with a little more labour than exacted by the production of resin from the Pine trees in the Landes. The superiority of the Maple sugar over that extracted from the Beetroot was ably demonstrated by M. Puibusque, who suggested the experiment of acclimatising being made at once on the northern slopes of the Pyrenees and Alps, particularly in the coldest parts of Savoy, of Auvergne, and the Cevennes. The first plantations are forthwith to be made in the valleys of Barcelonnette, Briançon, and Chamounix.

OUR LETTER BOX.

GREY AND WHITE GUINEA FOWL (J. M. E.).—We have a letter for you, but have mislaid your address.

BANTAM UNABLE TO CROW (A Constant Subscriber).—We shall not be surprised to find that the fine weather has rendered advice unnecessary. We should give castor oil every other day, and feed sparingly on ground food mixed with water until his voice returned. There is internal fever. If he is artificially supplied with green food let it be lettuce.

PILLS FOR RHEUM.—At page 72 of Mrs. Fergusson Blair’s work, pills to cure rheum, it is said three grains of calomel and one grain of antimony. What sort of antimony does this mean? James’ powder, tartar emetic, or what? It is certainly too vague to be acted upon.—A SUBSCRIBER.

[We consider that tartar emetic is the preparation of antimony intended.—EDS.]

PARROT EATING ITS FEATHERS (All Anxiously).—Do not give the bird hemp-seed or bones. Keep it upon souped bread, nuts, and any fruit it will eat. Let it have a constant supply of water to drink, and a bath in a soup-plate of water daily. If it does not take the bath voluntarily, give it a shower-bath through the fine rose of a watering-pot.

GOLD FISH (H. W. M.).—The white film on the eyes of Gold Fish seems of a fungoid character. The cause is not known. Can you obtain river water for them? See what another correspondent says on the subject to-day.

LONDON MARKETS.—MAY 20.

POULTRY.

The glorious sun that has rejoiced all things has not been without his influence on the market. In the dread that chickens will grow “while you look at them” and that the weather will lower prices, many have been anxious to get their share of a dear market, and the consequence has been a decline in the value of small chickens.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	6	0 to 6	Guinea Fowls.....	0	0 to 0
Smaller Fowls.....	5	0 „ 5	Leverets.....	3	0 „ 3
Chickens.....	2	6 „ 3	Pigeons.....	0	8 „ 1
Ducklings.....	2	6 „ 3	Rabbits.....	1	4 „ 1
Geese.....	7	0 „ 7	Wild.....	0	8 „ 0

WEEKLY CALENDAR.

Day of M th	Day of Week.	MAY 28—JUNE 3, 1861.	WEATHER NEAR LONDON IN 1860.				Sun Rises.		Sun Sets.		Moon Rises and Sets.		Moon's Age.	Clock after Sun.		Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	m.	h.	m.	h.	m.	h.		m.	s.	
28	Tu	Rosa precox, &c.	29.888—29.502	63—35	N.W.	—	54	af 3	—	—	44	11	19	3	2	148
29	W	Colutea Pocockii.	30.005—29.953	63—36	W.	—	53	3	1	af 8	—	—	20	2	55	149
30	Th	Narcissi.	29.906—29.827	64—40	N.W.	.07	52	3	2	8	3	0	21	2	47	150
31	F	Enocheras.	29.783—29.553	58—44	S.	.08	51	3	3	8	19	0	22	2	38	151
1	S	Spiderwort.	29.676—29.559	65—43	S.W.	—	50	3	5	8	34	4	23	2	30	152
2	Sun	1 SUNDAY AFTER TRINITY.	29.480—29.160	64—46	S.E.	.87	50	3	6	8	48	0	24	2	21	153
3	M	Geraniums.	29.486—29.330	61—45	S.W.	.04	49	3	7	8	3	1	25	2	11	154

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 67.8° and 44.9° respectively. The greatest heat, 85°, occurred on the 2nd in 1834; and the lowest cold, 32°, on the 31st in 1857. During the period 141 days were fine, and on 90 rain fell.

CROSS-BREEDING IN PLANTS.

FERTILISATION OF LESCHENAULTIA FORMOSA.



UCH obliged am I to Mr. Beaton for his very interesting answer to my question. When Mr. Beaton says he does "not know of an instance of the natural crossing of varieties," I presume he intends to confine his remark to the plants of the flower garden; for every one knows how largely the varieties of the Cabbage cross, as likewise

the ease (as I know from careful trial) with Radishes and Onions. It was this fact which led me to suppose that varieties of flower-garden plants would naturally cross.

I can quite understand, after reading Mr. Beaton's remarks, that it would be very difficult, perhaps impossible, to detect such natural crossing from the degree to which most of these varieties vary. I should, however, think that those who raise for sale seeds of distinct varieties of the Hollyhock, Stocks, &c., must know whether it is indispensable to keep the parent plants apart.

I will not trouble Mr. Beaton again if he will have the kindness to procure for me answers on one or two points quoted in his paper (June 26, 1860) from the "king of British cross-breeders"—namely, whether I understand rightly that the white *Anemone apennina* seedling in a mass with the blue (*Anemone apennina*?) produced many pale shades? For this seems to be a case of two varieties naturally crossing, though I want to know the fact for another reason—namely, because *Anemone* does not secrete nectar; and secondly, whether *Mathiola incana* and *glabra*, which the writer speaks of as "crossing freely," were artificially crossed.

Mr. Beaton's statement (July 24, 1860) that if the pollen of five kinds of *Geranium* (I presume what botanists call varieties, and not what are called species, are here referred to) are placed on the stigma of a flower, one kind alone takes the lead and produces an effect, seems to me a most curious observation. It is, I fear, unreasonable to ask for a few precise cases on this head; for, as I gather from Mr. Beaton, it must be difficult to know whether one or more kinds have produced an effect, owing to the great variability of crossed varieties.

I have been delighted to observe how strongly Mr. Beaton insists that "not a flower in a thousand is fertilised by its own immediate pollen." This is a subject

which I have attended to for the last twenty years. From my experiments on a small scale I would not venture to put the case nearly as strongly as Mr. Beaton does; but on the other hand, some of the plants which Mr. Beaton advances as self-fertilisers seem, as far as I can trust my own observations, doubtful. I will give one instance, as it might possibly induce some one to try the experiment. *Leschenaultia formosa* has apparently the most effectual contrivance to prevent the stigma of one flower ever receiving a grain of pollen from another flower; for the pollen is shed in the early bud, and is there shut up round the stigma within a cup or indusium. But some observation led me to suspect that nevertheless insect agency here comes into play; for I found by holding a camel-hair pencil parallel to the pistil, and moving it as if it were a bee going to suck the nectar, the straggling hairs of the brush opened the lip of the indusium, entered it, stirred up the pollen, and brought out some grains. I did this to five flowers and marked them. These five flowers all set pods; whereas only two other pods set on the whole plant, though covered with innumerable flowers. The seeds in these pods were bad, or else I had not skill to make them germinate. I became so strongly convinced that insects would be found concerned in the fertilisation of these flowers, that I wrote to Mr. James Drummond, at Swan River in Australia, and asked him to watch the flowers of plants of this order; and he soon wrote to me that he had seen a bee cleverly opening the indusium and extracting pollen; and a bee with its mandibles thus covered with pollen would very likely effect a cross between one individual and another of the same species. I have been told that this pretty plant, the *Leschenaultia formosa*, never sets seed in this country. I wish some skilful cultivator would rout up the pollen within the indusium in the manner described, and see whether he could not thus get seeds.—CHARLES DARWIN, *Down, Bromley, Kent.*

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 132.)

HOW TO ARRANGE FLOWERS.

MANY books have at different times been written about plants and flowers, abounding in directions how to grow them, while there seems scarcely to be an instance of even a paragraph advising how to arrange them. It is a very difficult thing, indeed, to spoil the appearance of flowers, or to make them look ugly; but certainly a great many of those into whose hands they fall give them every possible chance of obtaining such an undesired distinction. And while one would have fancied that the mere love of flowers would have brought with it taste for grouping them, what is more rare than to see them really artistically put together?

When I say "artistically," my readers must be kind enough to understand that I speak of that triumph of

art in which no art is visible, when everything is easy and unconstrained because perfectly suited to its place.

There are a great many things to be considered in the art of arranging flowers; I have the profoundest respect for such finished combinations as now and then appear, but I am very far from claiming such success myself. All that I pretend is, that I know a good many little ins and outs as to the mechanical part, and we all know that good rules for combining colour apply to one thing as well as to another.

Moreover, the Germans and Russians very far surpass the English generally in their floral decorations; and having some time ago made acquaintance with a little German Comtesse far from the Vaterland, with its flower-decked salons and graceful pretty fancies, she and I found an endless source of mutual interest in our love of plants and flowers, whilst all belonging to them was so important to us both, that she taught me almost as readily as I learnt all that she could tell of those pretty and useful works.

In the art of wreath and bouquet-making, we have in the first place to make a judicious choice of the most appropriate flowers and leaves which, whether for vase or dress adornment, must be chosen with due regard to the place they are to fill.

After the choice of flowers and their colours we have to determine how best to gather them, and how to mount them; how to prevent their fading or falling prematurely from their stalks; how to make a foundation in a way to secure all these results the better; and, lastly—I was very much tempted to write lastly—comes the mere actual placing of the flowers themselves.

There is a good deal to be said on all of these points; and as, in great measure, the same preparatory cares are necessary both for wreaths and bouquets, I have to request that the grounding may be deemed not unworthy of a little pains and time.

First. Let us consider what flowers may be chosen judiciously. Now, it is a notorious fact, that at least half of the young ladies who wear bouquets—unless the intervention of some provident French milliner saves them from the danger—wear such flowers as by no means suit their dresses, and that they arrange vases with quite as little adaptation to the colours and things around. It is, of course, exceedingly desirable the flowers should be of the same colour as the ribbons and the dress they are to be worn with, or for a table that they should be somewhat suited to the general decoration; but although that they should be suited is quite unexceptionable and altogether correct, we find the fact of their being of the same colour is by no means the likeliest course to adopt for reaching that happy result. Very few flowers will perfectly match with colours of human dye; and where they do not match, the human workmanship is very apt indeed, if contrasted with them, to show itself inferior.

These remarks, however, are only *en passant*. The business before us is to make what are in themselves good bouquets; and even so I must ask my readers if they can much improve on simple cerise or scarlet flowers with green and white relief; or pale sky blue and white, interspersed with little knots of pink; if any pink that it may have to go with, can indeed be exactly matched in shade. With pale blue, again, a still paler pink is a very charming contrast, and one which harmonises far better than any blue would do, though in this case little tufts of blue come in most pleasingly amidst the pink and white.

Pink answers best with mauve, perhaps, though primrose is not quite out of the question. Primroses sometimes will answer well with a pattern traced upon their ground, of the deep violet-coloured Pansies, or of large double purple Violets.

Lastly. With black costumes I consider the great secret of preparing a fitting bouquet is to have the chief part of the flowers very dark, and a few bright little

leaves and tendrils, or veins and edgings, just to catch a light and brighten up the whole. Light flowers look very poor on a dark background; while dark flowers are distinctly seen, and seem to acquire only a richer shade.

Having said so much of colour, I fear I shall at once convey a shock to the feelings of some of my readers by saying, that with these conditions as to colour, and a reasonable degree of judgment as to choosing prettily formed fresh flowers, I am so utterly lost to all respect for grand aristocratic hothouse plants, as to recommend the most sovereign indifference as to "what the flowers are," or "what they cost;" maintaining, on the contrary, that where a common every-day flower will answer equally the desired result, it is quite indefensible to pass it over merely because it is within reach of all. And, besides, how much more talent there must be in making a beautiful bouquet out of a few common flowers, depending for their *recherché* appearance on the good taste which dictates their grouping.

One of the very best white flowers I know for this purpose is the common white Lilac; the large pyramidal cluster being cut into small pieces, and each piece mounted with wire on a slender piece of stick. White Violets, again; white Hyacinths, the bells mounted also two or three together. I am told that white Alyssum is not to be despised, and white Verbenas and Geraniums are always on the list.

The Lilac is a useful flower to bear in mind, as it forces easily and well; and Chinese Primroses are amongst the best of winter flowers if duly brushed over with gum water underneath each flower. The pretty little *Deutzia gracilis*, Snowdrops, Azaleas, and many kinds of white Roses are also of the essential snowy white; and so is the exquisite little scented Clematis, which is amongst the very best of edgings; but common white Jasmine rarely looks well, or lasts long to wear. *Stephanotis* no one would doubt about adopting for a bouquet; and the same remark applies to the sweet white Cape Jasmines and Gardenias. White Myrtle blossom is often to be found in its prettiest half-open stage; and Orange blossoms, which are, however, not for common use.

The double blossoms of many shrubs, as of the Cherry, the garden Wood Anemone, and the wild Sweet Woodruff; Primroses also when they can be procured quite white, and double white Hepaticas; with many others which will occur to every one.

I say much about white flowers first, because they are always wanted, and it is, in fact, rare to get on satisfactorily without them in any bouquet arrangement; otherwise it will be sufficient in designs to mention special flowers, and to go on chiefly with the mechanical part of our pleasant work.

WREATH DESIGN.

Wreaths of mixed flowers are difficult to manage. A delicate eye for colour, and the lightest of hands for combining the flowers are required to prevent their turning out clumsy garlands.

The easiest to make are those of one flower, and they are much the prettiest. At this very instant one is furnished by my memory as so pretty that I cannot resist describing it instead of the mixed *jardinière*.

It was of Thorn blossom, scarlet and white. The white May or Hawthorn looks so exquisitely fair and pearly, and both kinds continue long unfaded. The little shoots of small-leaved Myrtle, or single leaves of some rather pale-coloured evergreen, are best for the foundation. When the May blossoms have been gathered with the morning dew upon them they should be put in water in a shady place, not in great branches, but the little heads, 3 inches long or so, cut off and put in water separately.

We should never handle flowers much, the lightest touch is sufficient to bruise and bend them.

Two long branches of Periwinkle form the very best of

stems. The leaves are evergreen, and the stems are moist and green. I have heard that taking out a little of the pith and through the slit-up bark laying the May flower stalks therein, answers well for keeping the flowers all the fresher. However that is, a few little bunches of the half-open Hawthorn, and here and there a single spray of scarlet or of crimson, do look very lovely mounted on the bine. The green foundation stems should be tied together with a piece of green Berlin wool, beginning always at the upper end and working towards the root end. The first tiny piece of May being laid upon the stem, the wool should be wound on down it, and after three or four rounds a slipnot should be firmly drawn to render the flower steady.

Next should come a little spray of green; tiny bits of Larch, look very pretty; and then, again, more May, and double or triple groups with one or two of the bright little scarlet clusters.

The flowers should not be arranged too closely, but bound on at short intervals broken by the smaller buds and green, and at the centre or sides where a degree of fullness and of massiveness is required, the flowers should be arranged in small knots before they are mounted on the stem itself.

Each side would require about three knots of flowers, and they should be arranged either with perfect exactness as to colour and place, or without any attempt at all at evenness.

Many persons are in the habit of winding a very narrow green ribbon evenly down the stem, folding it frequently in a slope to induce it to lie smooth.

For the head, or for hanging, German-like, on a picture-frame, the wreath is often made most easily by beginning at each end and working towards the centre. When a high coronal is to fill the centre its knots of flowers serve to unite the two sides, and where the centre is small the join is best at the commencement of the side groups.

I hope my readers will not try to add any other flowers. But if a few Fern leaves should be put in, I think they would greatly add to the air of lightness.—E.

(To be continued.)

CRYSTAL PALACE FLOWER AND FRUIT SHOW.—MAY 18.

ALL the plants were better arranged for effect this time than they have yet been at the Crystal Palace. There were no plants set up in the centre of the great transept to intercept the view from end to end. The old kinds of Azaleas, which were very finely bloomed and very numerous, were placed in the four corners of the transept, and the newer kinds in collections followed along one side of the south nave, where also were the Cinerarias, Calceolarias, and mixed collections of new and old plants; and opposite to these stood the Roses and Pelargoniums, both very well done. The fruit stood along the centre of one end of the transept, opposite the grand orchestra, and on each side of that part were the variegated and fine-leaved plants; while the only two first-class collections of tiny Stove and Greenhouse Plants which competed stood across the end, and right opposite the great organ, the end under the orchestra and organ being tastefully evergreened with the cream of the Palace plants—such as Orange and Bay standards, Rhododendrons and smaller plants with finer foliage. At Burns' festival this part was highly decorated in the same style, but not so effective as on this occasion.

The Orchids occupied nearly the whole north side of the nave beyond the orchestra, and on the opposite side were placed the minor collections of stove and greenhouse plants. And the florists' cut flowers were placed in the extreme centre next the stove or tropical end; so that from the screen of the kings and queens at the head of the crystal fountain basin an uninterrupted view was obtained down to the Tulips at the extreme end. Any one who can distinguish a perspective from a bird's eye view could tell that by placing a group of plants in the centre of this vista, as we have seen done on former occasions, the one-half of the view is lost, and, in effect, the one-half only

of the Exhibition tells on the eye. That, then, is a practical illustration of the optical delusion caused by placing a mass of scarlet, or yellow, or crimson in the centre of a flower garden.

The blooms were not so many nor so early as they have been every May since I first went on the circuit in 1837; and the fine-leaved plants never looked so dull since 1838, when I first put up a whole tent full of odds and oddities of the kind at Chiswick Gardens. The florists beat the gardeners out and out at this Show—their Azaleas, Roses, Geraniums, and Cinerarias were indeed wonderful; but I could not get near their Pansies and cut flowers, for they were crowded round the whole day. But having just received a large basket of the best Belgian Pansies I hope to be able in the autumn to set up a ribbon-border of them for next spring.

The prize list in the last Number of THE JOURNAL OF HORTICULTURE saves me names and numbers, and the rage for florists' flowers comes in aid of my tale in the person of the best judge of them in the three kingdoms, who had free access to them before they were so crowded round.

There was no competition for the collections of Stove and Greenhouse plants, and Mr. Peed was the winner of the first and second prizes for them. He had the best grown and the largest specimen of *Impatiens Jerdonia* that has yet been seen—it might be 2 feet by 2 feet; one *Ixora salicifolia*; one *Leptodactylon californica*, a bedding-out plant well done in specimen; a fine *Tetralthea ericifolia*; and the usual amount of the genera *Aphelexis*, *Epacris*, *Pimelea*, *Eriostemon*, *Heath*, and *Azalea*. And in his second-prize score were these also, and, in addition, *Genetyllis Hookeriana*, *alias fuchsoides*, *Hypocalymma robusta*, and *Acrophyllum venosum*, with others, and a nice plant of *Adenandra speciosa*. Mr. Peed received £10 for exhibiting these forty plants.

Next came collections in twelve Stove and Greenhouse Plants, and among these were the best-grown plants at the Exhibition: one, *Tetralthea ericifolia*, 5 feet, or nearly so, across, was the finest specimen which Mr. Green ever exhibited, and he was the only gardener there who spelt *Hedera* properly—a name which seems to puzzle all other exhibitors of it. Such false spelling is shameful; the blame, however, ought to rest on the old Horticultural Society, and on the Regent's Park people, who actually taught gardeners to despise the spelling of the names of plants unless they were paid to do so by a prize, instead of being disqualified from winning a prize for wrong spelling.

Mr. Green's next best were numerous—as *Allamanda grandiflora*, *Franciscæa calycina*, *Pimelea Hendersonii*, *Rhododendron formosum* (very fine), *Aphelexis*, *Eriostemon*, *Polygala*; and his *Hedera*, or *Genetyllis Hookeriana*, *alias fuchsoides*, was called *macrostegia*. Is that a second alias? or are there two species which one cannot tell from sight?

Mr. Baxendine followed with the next best twelve, beginning with two *Heaths*, two *Polygalas*, two *Azaleas*, or rather three *Azaleas*, *Criterion* and *Iveryana* having been ingeniously worked on one stock, and both made an excellent plant; then *Aphelexis*, *Adenandra*, *Epacris*, *Rhinchospermum jasminoides*, and a very large thin plant of *Boronia Drummondii*.

Mr. W. Cutbush, nurseryman, Barnet, was next up to the mark. He had the two *Hederas*, *tulipifera* and *fuchsoides*; two handsome *Polygalas*, *Boronia tetrandra*, a fine *Adenandra*, and a finer *Erica*, *Victoria regina*, *Azalea criterion*, the very useful *Epacris lævigata*.

Mr. Chilman followed at the top of the Eight-Plant Collections. His very best was a fine *Acrophyllum venosum*, the best of the kind there; *Boronia Drummondii*, two *Aphelexes*, *Erica Cavendishii*, *Franciscæa confertiflora*, and *Polygala*. Mr. Kaile was second, a fine *Stephanotis*, *Rhinchospermum*, *Franciscæa*, *Vineæ*, *Epacris*, and *Aphelexis*. Mr. Page had the third best lot of eight, of which *Dracoecephalum gracile* was different from the above; and Mr. Tegg had a fourth prize in this class, he had two plants different from the above—*Oxylobium Pultenææ* and *Kemedia mophylla*.

The next class was of sixes; and here Mr. Page was first with *Boronia Drummondii*, *Hedera tulipifera*, a fine specimen; *Erica suaveolens*, also a fine plant; *Azalea*, and a repetition. Mr. Smith was second; *Rhinchospermum jasminoides*, and *Chorozema microphylla* being his best. Mr. Kaile was third with a good *Euphorbia splendens*, *Stephanotis*, *Erica Cavendishii*, *Aphelexis*, *Azalea*. Mr. Green next; his two rarest plants were *Daviesia nimbata* and *Azalea extranii*. And Mr. Baxendine had an extra prize, *Adenandra* and *Erica Beaumontiana* being his two best. Mr. Chilman was paired with Mr. Green in

a fourth prize for sizes, *Chorozeia Lawrenciana* and *Allamanda nerifolia* being different.

The next class comprised variegated and fine-leaved plants. Here Miss Burdett Coutts' gardener, Mr. Hutt, was first with huge specimens—a pair of great tree *Ficus*, *Agathaea* and *Dicksonia*, *Mousteria pertusum*, labelled *Philodendron persutum*, with a wrong natural order prefixed. How is that? *Croton*, *Maranta zebrina*, *Sansevieria zelanica*, *Dumb Cane*, and others of that stamp. Mr. Young had the next two prizes with similar plants, and a splendid *Cyanophyllum* hard upon 5 feet in height; *Theophrasta imperialis*, and *Aralia Sieboldi*. Mr. Bunney, nurseryman, Stratford, was next with a *Dicksonia*; a *Pandanus javanicus* variegated, *Pavetta japonica*, and *Ropala Jonghii*, differing from the rest as above.

There were several other collections of the same stud, including *Begonias*, which, by the way, do not improve by size. *Yucca*, *Justicia*, *Crotons*, *Caladiums*, *Dracenas*, *Farfugiums*, *Ropalas*, *Cissus*, *Aralia*, and such like in abundance.

Next in order of the schedule were the *Orchids*, a magnificent bank of very fine-grown plants, and a few very poor indeed. In the comparison of elegant—more elegant, and elegant—there were four kinds in array—*Dendrobium Paxtoni*, and three kinds of *Odontoglossum niveum*, perhaps, the most elegant, and there were two varieties of it. The other two were *Odontoglossum pulchellum* and *citrosimum*. But let us begin at the top of the ladder, where Mr. Stone showed sixteen plants of surpassing merit in cultivation—*Dendrobium Devonianum*, *D. macrophyllum*, with four very long spikes loaded with bloom, and loading the air with druggist-rhubarb smell; *Lælia purpurata*, with four blooms; *Ærides virens*; *Saccolabium retusum*; *Cattleya Mossie*; *Odontoglossum Piscatorii*, and *niveum*; *Epidendrum bicornutum*, a very fine *Oncidium ampliatum major*, and so on.

Mr. Peed was second with sixteen more moderate, of which *Calanthe masuca* and *Phalenopsis* were the two best and most differing. Next class in tens; and here Mr. Milford, and Mr. McMoreland his employer, stood fixed in the first prize. Here was the best-flowered *Lælia purpurea* I have yet seen, it had three spikes and eleven or twelve flowers fully expanded—the finest plant at the Exhibition. The Fox's-brush *Ærides*, or *Fieldingii*, was also very fine, and more of it here and there stamp it as one of the very best; *Phalenopsis grandiflora*, two varieties of the varied *Vanda suavis*, *Cattleya amethystina* and *Mossie*, and *Oncidium ampliatum major*, the poor man's *Orchid*, the easiest to do of all the *Oncids*, and the best-paying one when done. This same plant will last out the June shows, and likely enough some of the July ones.

Mr. Stone next, with *Odontoglossum gloriosum*, a variety of *niveum*; ditto *citrosimum*, a love of a thing; and *Phalenopsis grandiflora*, *Cypripedium Lowii*, with two flowers, *Ærides Warneri* and *Fieldingii*, *Saccolabium guttatum*, *Cattleya Acklandiae* with one bloom, and *Mossie*, with *Uropedium Lindenii*, which, if there be an *Orchid* from beyond the flood this must be it, for it is

"The queerest shape that e'er I saw,
For fient a wame it had ava."

Mr. Page was third with *Cattleya Skinneri* and *Mossie*, Fox's-brush *Ærides*, *Phalenopsis grandiflora* and *amabilis*, *Vanda insignis*, *suavis*, and *tricolor*. Mr. Woolley was next in tens with two *Dendrobium nobile* and *Paxtoni*; *Cyrtorchilum filipes*, *Ærides crispum*, *Vanda suavis* were the best.

In the class for six *Orchids*, Mr. Penny was first with *Lælia purpurea*, with three flowers; *Phalenopsis grandiflora*, with three long branching spikes; *amabilis*, with one spike; and *Cypripedium barbatum superbum* as the best. Mr. Bunney next with a fox's-brush of beauty, a *Phalenopsis grandiflora*, with three fine spikes again, and an *amabilis* with one spike, a *Saccolabium retusum*, and *Vandas* of the breed of *suavis*. Mr. McMoreland third, with *Cypripedium hirsutissimum*, the shop-rhubarb-smelling *Dendrobium*, also *nobile*, *Vanda*, and *Cypripedium*, all in self-ventilating pots. And Mr. Chilman was extra in the last of the sixes; and his difference was a *Cymbidium elchioranthum*, another queer thing as green as groudy. Mr. Stone and Mr. Smith also had extras in sixes. Mr. Stone had the only *Lælia cinnabarina* there, two elegant *Odontoglossums*, and *Ærides Lindleyana*. Mr. Smith, the beautiful *Odontoglossum pulchellum*, *Maxillaria aromatica*, *Acineta Barkeri* as his best. In tall Cacti Mr. Green is always first fiddle. Mr. Young was second, and Mr. Ashman third. The plants were not right out in bloom, and Mr. Young had the only "novelty," the name of a light red seedling, apparently from *crenata*.

AZALEAS.—Here was the first battle of the day, the rest being, in comparison, a volunteer review. Mr. Turner, of Slough, knocked the gardeners all over their barrows. Mr. Ivery came up from Dorking on purpose to do battle in earnest; and after assisting Mr. Turner to turn the right and left wings of the Trojans, they fell foul of each other about the newest fashion in Azaleas. There never were better Azaleas, surely never so many of them before on a field day. Mr. Turner had the first prize in the class for ten *Greenhouse Azaleas*, beginning with *Extranii*, as his highest colour, then *Murrayana*, prestantissima, variegata, *Perryana*, and *Glory of Sunning Hill*—a double dull red kind. Mr. Green, at his old north-east corner, was second with the yellow *sinensis*, *Stanleyana*, *Perryana*, prestantissima, *Sir Charles Napier*, semi-duplex maculata, and *alba magna* as his best. Mr. Carson followed opposite with the yellow in the centre, with *Exquisita* on one side, and *Lateritia*, a contrast, on the other side of his centre; then *Iveryana* and *Murrayana* to match in contrast again on opposite side of his key plant; then *Criterion*, *Bianca*, *Apollo*, *Carnea*, and *Double Red*, all remarkably well placed for effect. Mr. Peed an extra.

In the next class for sixes, Mr. Turner took the lead again with nice smaller plants. Mr. Page followed also with nice sizeable plants, of which coronata was the liveliest colour. Mr. Ivery and Mr. Penny being equal in the next run. Mr. Ivery had the best selection—namely, *Rosea elegans*, a very bright flower, *Rubra plena*, *Delicata*, *Iveryana*, and *Criterion*.

The next class turned the tables, and Mr. Ivery was uppermost with eight new kinds—*Variegata superba*, *Admiration*, *Rosea alba* (fine), *Distinction*, *Flower of the Day*, *Lord Raglan*, *Etoile de Gand*, *Rosy Circle*, *Due de Nassau*, and *Standard of Perfection*. Mr. Turner second, with *crispiflora*, a telling sort; *Gem* and *Perfection*, two exquisite; *Petunissellora*, a fine rosy kind with a violet tinge all over it; *Empress Eugenie*, and *Iveryana*, or one like it. And Mr. Ivery appears again with another eight—*Rubens*, variegata, *superba* again, *Criterion*, *Stanleyana*, *Gem*, and, indeed, the gem of all that were there—*Duchesse de Nassau* and *Beauty of Europe*.

In *Heaths*, Mr. Nobody was first. Mr. Peed second, with *Beaumontia depressa*, a large *ventricosa coccinea minor*, the best *Heath* there, and five others. Mr. Rhodes third—*albertus* and *ventricosa magnifica* being his two best plants. Mr. Chilman fourth, and *albertus* with *ventricosa coccinea minor* again were his best.

In the class for extremely Rare or Beautiful Plants, Mr. Williams had the best of it with a new *Lælia*, in the style of *Lælia purpurea*. Mr. Bull had those new plants which he exhibited this spring before the Floral Committee, and some others—as the fine single form of *Petunia Inimitable*, *Gymnogramma pulchella ramosa*, and several other novelties. Mr. Verschaffelt also sent over a collection of three or four kinds of variegated *Begonias* quite different from the usual forms. The Messrs. Lee sent their new very pretty small Fern—*Polystichum vestitum*, a gem of a thing. A fine specimen plant of their true *Cordylina indivisa* and *Sisyrinchium*, and others, which have been noticed in the reports of the Floral Committee. Mr. Bunney had a prize for six nice kinds of *Anætochilus*. Also Mr. Lacey for Ferns. The Messrs. Smith of Dulwich, for *Gloxinias*, and Mr. Young for a miscellaneous collection, in which were *Begonias*, *Caladiums*, and the only plant there of the *Alocasia metallic*. There were several other odds and ends; and Mr. Porter, Brixton Hill sent three kinds of yellow *Polyanthus* for spring borders. They were among the collections of yellow *Polyanthus* which I lately received. I called that morning on the best and oldest grower of yellow *Polyanthus* known to me. He had them first from the Youngs, of Epsom Nursery, has been at them these thirty years, grows them remarkably healthy in pots, and stages them like *Auriculas*, got nearly a white one this season, but never knew any of them come true from seeds. I fear to give his name lest his villa, his conservatory, and greenhouses, should be pulled down about his ears by idle people, who would press to see the man in the moon, if ever he got into print about flowers and experiments, half the world being perfectly daft on that one point.

FRUIT.—There was a keen competition among the fruit growers, and the bulk of the fruit was most excellent, particularly the Pines and Grapes. Peaches, Neectarines, and Cherries, and the Melons, were much smaller and far better flavoured than I ever before knew them at the Crystal Palace. The dish of British Queen Strawberry from Mr. Smith, of Twickenham,

was the finest sample of successful forcing ever exhibited anywhere. The *Violette Hâtive Nectarines*, and the black Cherries from Mr. Henderson, of Trentham Gardens, were also the finest-coloured fruit I ever saw at a May show; and the run for the best black Grapes between Mr. Henderson aforesaid and Mr. Hill, of Keele Hall, was worth a Derby day. The largest and the heaviest Pine—a noble Rothschild variety—from Mr. Stewart, Chatsworth, was indeed a surprising fruit. A strong man and a good judge lifted it for me, and he put the weight down as from 8 lbs. to 9 lbs.—it might be more. The next best Pines were of the smooth-leaved Havannah breed, with crowns as small as the comb of a Bantam cock. The best-flavoured Melon was the smallest fruit there of the Trentham Hybrid. It might be 1½ lb., was as yellow as an orange, and of the shape of a lemon: it was the finest-flavoured Melon I ever tasted. My teeth watered to taste another very small green-fleshed Melon of the true old Egyptian model; but as I was only once on the Fruit Committee, and did not yet learn how to judge two Melons at the same time without something to wash down the flavour of the first, I withstood the temptation.

There was one brace of Cucumbers which some one marked for seedling, and which some one else mistook for a Prizefighter, and sent it to the Show in a mistake, and some of the gardeners were much tickled at the idea of the thing. But as the prize list tells its own tale, I need not go over the same ground again.

D. BEATON.

THE FLORISTS' FLOWERS AT THE CRYSTAL PALACE.

NOTHING strikes one more forcibly, I think, at the early shows than the manner in which skill and knowledge of the habits of plants completely seem to defy all elemental difficulties. One heard all sorts of surmises and prophecies, that Pelargoniums would have no colour, and Tulips could not possibly be correct, yet when the day came it seemed as if, instead of one of the most unpropitious seasons on record, we had had the most favourable one possible. Another thing was forcibly impressed on my mind—viz., the truth of the observations I made on the arbitrary distinctions of florists' flowers. Mr. Beaton naturally took the Azaleas under his wing, and I the Pelargoniums, and wherefore one could hardly say. The former has had quite as much care bestowed upon it—has been improved, has endless varieties, and yet one does not quite recognise it as a florist's flower, while the latter is at once admitted as such. It needed no witch to at once pick out the first-prize collection in Pelargoniums, only two of which were exhibited in each class. Mr. Turner's are so unmistakably a-head, that though Messrs. Dobson & Son made a very hard push, yet there was an immense distance between the two collections. Mr. Turner's sorts (10) were—*Mr. Marnock*, a spotted variety; *Rose Celestial*, bright pink; *Desdemona*, fine white, with deep blotch on top petals; *Roseum*, very bright; *Admirable*, something in the way of old Carlos; *Guillaume Severys*, a French variety, not perfect in shape, light lilac purple with dark mulberry blotch, under petals spotted with same colour, very attractive for its contrast; *Fairest of the Fair*, very white; *Governor General*, an old but favourite variety, deep rose tinted with orange; and *Prince of Wales*, a very warm rose colour, with dark maroon top petals. Messrs. Dobson & Son had *Admirable*; *Sanspareil*, still, I believe, the prettiest of all the spotted sorts; *Rosalie*, pretty; *Fairest of the Fair*; *Eugène Duval*, a French variety, light purple with dark blotch; *Rose Celestial*; *Una*, fine white; *Symmetry*; *Aurelia*; and *Fair Ellen*, a good clear white. In eight Fancies, Mr. Turner was again first, with fine plants of *Modestum*; *Madame Rougière*; *Lady Craven*; *Cloth of Silver*; *Circle*, very dark and fine; *Queen of the Valley*; *Acme*, very dark and a splendid plant; and last, but not least, *Celestial*, a magnificent plant in full flower and excellently coloured. Messrs. Dobson and Son took second prize with *Madame Rougière*, *Captivation*, *Negro* (very dark), *Evening Star*, *Madame Van de Weyer*, *Attraction*, and *Bridesmaid*.

Cinerarias, which did not look particularly well, were contributed in four collections. The first prize for six varieties was allotted to Mr. Turner for *Bellissima*, a light blue, with rather pointed petal; *Alarm*, dark and good self; *Slough Rival*, pretty but hard in the footstalk, and not filling up the head of bloom well; *Perfection*; Lidgard's *Brilliant*, a fine blue edge; and *Queen Victoria*, dark crimson border, very good. Messrs.

Dobson & Son were second with *Duchess of Sutherland*, *Brilliant* (fine self), *Perfection*, *Mrs. Hoyle*, *Masterpiece*, and *Mrs. Marnock*. Mr. Burley, nurseryman, of Limsfield, took third with *Miss Godfrey*, *Perfecta*, *Beauty*, *Wonderful*, *Perfection*, and *Mrs. Dix*. The fourth was awarded to W. J. Fry, Esq., Baston Hayes, Bromley.

The queen of flowers was well represented, and as usual attracted a large number of visitors. Their delicious fragrance, as well as their freshness and beauty tending to draw large houses. For ten Roses in pots, the first prize was awarded to Messrs. Lane & Son, Great Berkhamstead, for immense plants of *Triomphe de Paris*, H.P.; *Coup d'Hebe*, H.B., a splendid plant; *Léon des Combats*, H.P.; *Gloire de Dijon*, Tea; *Baronne Prevost* H.P.; *Comtesse Mole*, H.B., large but rough and coarse; *Chénédole*, H.B.; *Paul Perras*, H.B.; *Souvenir d'un Ami*, Tea; and *Jules Margottin*, H.P., a beautiful plant. Mr. William Paul, of Waltham Cross, was second with *Louis Odier*, H.P.; *Souvenir de la Malmaison*, B.; *Souvenir d'un Ami*, Tea; *Baronne Prevost*, H.P.; *Chénédole*, H.B.; *Viscomtesse des Cases*, Tea, very yellow; *Paul Perras*, H.B.; *Paul Ricart*, H.B., very bright; *Jules Margottin*, H.P.; and a grand plant of *Madame de St Joseph*, Tea. Messrs. Paul & Son, third, with *Auberson*; *Charles Lawson*, H.B., very beautiful; *Narcisse*, T.; *Baronne Prevost*, H.P.; *Souvenir de la Malmaison*, B.; *Jules Margottin*, H.P.; *Géant des Batailles*, H.P.; *Nephtos*, Tea, very white; and *Paul Perras*, H.B.

For six Roses in eight-inch pots, to my mind a much more attractive class, Mr. W. Paul was first with *Victor Verdier*, a very large, rich, rose-coloured flower; *Empereur de Maroc*, very dark, of which an admirable drawing by Andrews appeared in Paul's "Rose Annual for 1860-61;" *Madame Boll*, very large, but in my opinion too rough and coarse; *Lelia*, a very pretty large-petalled flower in the style of Louise Peronny; *Madame Demaizin*, a fine and deep-coloured Tea; and *Triomphe de Paris*. Mr. Turner, of Slough, was second, with *Mathurin Regnier*, *Madame de Cambacères*, *Caroline de Sausal*, *Jules Margottin*, *Paul Perras*, and *Duchess of Sutherland*. There was a deficiency of colour in this lot; one or two high-coloured flowers would have given more variety to Messrs. Paul and Son third, and Messrs. Lane & Son fourth.

A nice collection of cut Roses came from Mr. W. Paul, amongst which were fine blooms of *Eugène Appert*, H.P., a very fine high-coloured flower; *Madame William*, a new Tea; *Baron Gouella*, B., a large crimson-coloured flower, very good; *Homère*, a mottled rose-coloured Tea, something like Bougère; *Empereur de Maroc*, H.P.; *Cardinal Patrizzi*, H.P., both very dark; *Triomphe de Lyon*, H.P., one of the new Roses of last season, a fine high-coloured flower; *Buffon*, H.P., a dark scarlet, also new; and some fine blooms of *President*, which is really a grand Tea-scented Rose.

A group of six shrubby Calceolarias, exhibited by Mr. Burley, nurseryman, Limsfield, Surrey, deservedly attracted great attention. They were quite bushes, covered with bloom, and in size and colouring approached very near the herbaceous kinds. They were well grown, and reflected great credit on their raiser, for they were all seedlings of his own. They were—*Lord Raglan*, a fine reddish-scarlet, distinctly marked with crimson; *Emperor*, another large crimson-spotted variety; *Primrose Perfection*, clear yellow; *Lord Derby*, orange spotted with red; *Victor Emmanuel*, scarlet spotted; *General Havelock*, rich maroon. He also showed cut blooms of *angustifolia globosa*, a dwarf yellow kind for bedding.

In Cut Flowers, besides Roses above mentioned, were shown Tulips and Pansies. Of the former four pans of twenty-four varieties, and of the latter eight or nine of the same number. The Tulip is not everybody's flower, it involves a great deal of trouble, is gaudy, and has no perfume; but I think few persons could have seen the pan of Mr. Turner's which took the first prize without admiring them. It is the fashion with some to run down florists, to speak of their conventionalities, &c.; but it was very strikingly seen in the difference between the first prize and even the second how correct those rules are, and how even they approve themselves to the uneducated eye. Mr. Turner's flowers were—*Royal Sovereign*; *Rosa Blanca*; *Fleur de Marie*; *Aglaia*; *Lady Hildair*; *Caliph*, ex., ex.; *Sir Colin Campbell*, distinct and clear feather; *Duchess of Cambridge*, ex., ex.; *Mary Headley*, fine shape; *Sarah Headley*, a fine feathered rose; *King*; *George Glenny*; *Laurence's Friend*; *Rose Celestial*; *Dr. Horner*, beautiful clear yellow with slight feather; *Seedling 648*, a flamed and feathered Byblosmen; *Rutley's Queen*;

Enchantress, a bright scarlet feather; *Duchess of Sutherland*; *Willison's Gem of Gems*, a fine feather; and *Seedling C 29*. Mr. Betteridge was second. Amongst his flowers were fine blooms of *Everard*, beautiful shape; *George Hayward*, a fine feathered bizarre of good shape; *Salvator Rosa*; *Strong's King*; *Seedling No. 2*, feathered Byblömen. Mr. Nathaniel Norman, of Woolwich, was third; and Mr. James Batten, of Clapton, fourth.

In Pansies the two best boxes were contributed by Mr. James, gardener to J. F. Watson, Esq., Isleworth; but the Judges had a considerable debate as to whether there were not too many dark selfs. This is an evil that requires correction. As a rule they are more easily grown; and the consequence is, that if an order is sent for twenty-four Pansies you are pretty sure to get nearly half dark selfs. Mr. James's flowers were—*Nepalese Chief*; *Colonel Wyndham*; *Rev. H. H. Dombain*, good dark; *Frances Low*, a beautiful clear yellow ground; *Father Garazzi*; *Maid of Bath*, fine white; *Alexander McNab*; *Eugenie*; *Miss Bill*; *Ladyburn Beauty*; *Alice*; *Duchess of Wellington*; *Mrs. Laird*, fine white ground; *Canary*, good yellow; *Duchess of Hamilton*; *General Young*; *Rev. J. Dix*, a good dark self; *Nymph*; *Jeannie's Rival*; *Miss Walker*, a little rough; *Saturn*; and *Mr. T. Graham*. Edward Shenton, Esq., was third; and Messrs. Dobson & Sons fourth.

It was too early in the season for seedling flowers. The only noticeable one was a new bedding Geranium, for which an extra prize was awarded. It was the same one which had received a first-class certificate from the Floral Committee, and is called *Prince of Hesse*, and was raised by Mr. Ingram, of the Royal Gardens, Frogmore. It is of the rosy salmon class, somewhat after the style of Kingsbury Pet, a profuse bloomer, with dark horseshoe foliage and is likely to be an acquisition.—D., Deal.

NEW BOOK.

THE MINIATURE FRUIT GARDEN.*—In this, the tenth edition of Mr. Rivers' excellent work on the garden culture of fruit trees (for that is what it in reality is) we have an evidence that the cultivation of fruit trees is still in the ascendant, and that the old-fashioned practice of planting tall wide-spreading orchard trees in gardens is rapidly on the wane. Among the additions and improvements in this over former editions we observe corrected lists of the selected varieties, particularly among the Plums, into which several fine and valuable sorts are introduced. Another important feature is the *groundinery*, an improved form of the curate's vinery of former editions. In speaking of these Mr. Rivers says:—

"In gardens where these glazed ridge-roofs are not wanted for Vines or fruit-tree culture, they will be found most useful. They may be placed on any warm border on the surface of the soil; and early Peas, French Beans, and many other early vegetables requiring protection from spring frosts, be grown under them with advantage. For the cultivation of early Strawberries they are invaluable, as they not only hasten the ripening period, but protect the fruit from heavy summer showers often so injurious to the crop, and also from birds. Strawberry plants to be cultivated in ground vinery No. 1 should be planted early in autumn in narrow beds of two or three rows, the plants close together in the rows, so as to take full advantage of the glass-covered space. If in two rows, they should be 9 inches apart; if in three rows, 6 inches apart. The latter distance will probably crowd the plants too much; but as the beds should be made every season on a fresh piece of rich soil, as much fruit as can possibly be grown in such a limited space must be the aim of the cultivator. In all cases they, the glazed ridge-roofs, should be placed on bricks, with spaces between them. Ventilation is then secured; and even Cauliflower-plants in winter will do well without the constant attention to "giving air," so necessary in the old garden-frame culture. In gardens that are confined and very warm, it may be necessary to have the ends not quite closed up, but a small opening left at the top, just under the ridge, to let out the heated air. My vineries stand in a very exposed place, and do not require it."

THE EXPERIMENTAL GARDEN IS SOLD.—Mr. Nightingale, of Kingston, sold this garden, the house, and twenty-three acres of land, at the auction mart in London, on the 16th of May, for £15,500. The alterations which were commenced in 1853, consequent on the move for an experimental garden, did not cost altogether over £500, but were acknowledged by good judges in the family to have doubled the value of the estate as early as 1858, and I have no doubt myself that a thousand such places might be met with within an hour of our great cities which require a fresh turn over, and would well pay for it.—D. BEATON.

* *The Miniature Fruit Garden, or the Culture of Pyramidal and Bush Fruit Trees, with Instructions for Root-pruning, &c., &c.* By Thomas Rivers. Tenth Edition. London: Longmans.

EFFECTS OF LAST WINTER ON PLANTS IN ENGLAND.

(Continued from page 136.)

I VENTURE to send you an account of the ravages made by the frost of last winter amongst my evergreens, &c.

Taxodium sempervirens.—Dead.

Deodaras, 12 feet high.—Dead.

Wellingtonia, 6 feet high.—Dead.

Younger plants have lost 1 foot of their leaders.

Evergreen Oaks, 60 years old.—All dead.

Deodara robusta.—Dead.

Thuja aurea.—Dead.

Pampas Grass.—Dead.

Magnolia on south wall.—Dead.

Araucaria imbricata.—Nearly killed.

Cryptomeria japonica.—Dead.

Thuja gigantea.—Much cut.

Aucuba japonica.—Dead; generally speaking, even the roots.

Hollies.—All leafless, many dead. Eight on the lawn measuring:—1. 2 feet 3 inches. 2. 4 feet 11 inches. 3. 5 feet 3 inches. 4. 2 feet 7 inches. 5. 4 feet 4 inches. 6. 4 feet. 7. 4 feet 10 inches. 8. 4 feet—I am afraid will lose all their lower branches.

The *Cedrus atlantica* and the Cedar of Lebanon have lost all their foliage, but are now breaking.

Rhododendrons.—Very much browned, and in many instances dead.

Yews and *Box*.—Ditto.

Privet.—Many hedges totally destroyed, others have lost plants here and there.

Ivy.—Leafless and in many instances dead.

Pinus insignis, *Fitzroya patagonica*, and *Libocedrus chilensis*.—Dead.

Even the common *Elder* is dead to the roots in many places; and in taking down some young *Oaks* I found several dead at the top. The two worst had 21 feet out of 60 feet, and 27 feet out of 58 feet dead. These trees were marked in the winter; so, doubtless, I shall find many more in a similar way when they are examined later in the year. At present it is quite impossible to say which *Oak* is alive. There is scarcely one that has not lost all the ends of its branches, so that they all look truly wretched. As for Laurels, I consider them a thing of the past.—W. B., *Stradsett Hall, Downham Market, Norfolk*.

WE are on a considerable elevation bordering on the south coast. The frost here was very intense, and has acted with unusual severity on many things. Common Laurels, Portugal Laurels, and *Laurustinuses* of many years standing, and considered able to bear any amount of frost, have been seriously injured, while some things of whose capability of standing a severe frost we have always been doubtful, remain untouched. These include *Aucuba japonica*, *Arbor Vitæ*, *Thujas*, *Bays*, &c.

The damage to newly-planted shrubs has been very serious. Relative to *Roses* we have a sad tale to tell. Not one of the Tea-scented kinds remains, and the Hybrid Perpetuals are but little better. Some of the more hardy sorts remain only to remind us that their time, too, with us is short indeed.

On some wall trees newly planted just prior to the frost I had bestowed an unusual amount of care, but to no purpose. Its effects on them have been sad in the extreme: many of their shoots were so injured I was compelled to cut them close in. Where that was the case I cut the whole of them close back.

I believe the whole county of Sussex has felt the frost's effects equally severely, our neighbouring nurseries included. Of young fast-growing stock many thousands have, ere this, been committed to the flames, and valuable stock too. So direly has it visited one nursery of about sixty acres, that although in the beginning of last December I should have had little difficulty in getting a good cartload of good stout young *Bays*, yet, on paying another visit in the month of March, not one plant could be found untouched by frost.—JAMES C. CLARKE, *Wakehurst*.

SALE OF ORCHIDS.—At the sale of Dr. Butler's excellent collection of Orchids, at Woolwich, on the 15th inst., Mr. Stevens, the auctioneer, realised for them very high prices. There were three hundred lots, and the gross amount of the sale was upwards of £1500. The following are some of the chief prices given and the names of the buyers:—*Ærides crispum* (Wilkinson),

£9; *Saccolabium Blumei majus* (Warner), £14 10s.; *Saccolabium guttatum* (Veitch), £52. Two other specimens of the same sold respectively to Mr. Bassett and Mr. Day for £32 and £36. *Saccolabium ampullaceum* (Day), £21; *Vanda teres* (Turner), £16 10s.; *Erises Lindleyana* (Binns), £15; *Anguloa Clowesii* (Wilkinson), £13; *Phalenopsis amabilis* (Day), £14; *Cypripedium hirsutissimum* (Backhouse), £6 15s.; *Vanda insignis* (McMorland), £15; *Cattleya Mossiae aurantiaca* (McMorland), £18; *Erises Schrederii* (Williams), £21; *Saccolabium guttatum giganteum* (Day), £46; *Saccolabium præmorsum recurvum* (Veitch), £23; *Saccolabium curvifolium* (Day), £36, &c.

CONIFEROUS TREES AND SHRUBS:

WHICH TO REJECT AND WHICH TO PLANT.

FROM the experience gained in the winters of 1859 and 1860 we have now some guide as to the kinds of Coniferous trees and shrubs that should not be planted in the northern, midland, and eastern districts of England, where permanent beauty in trees and shrubs is desired. I will first give a list of those to be rejected.

1. *Araucaria imbricata*.—On dry hills this may be planted; but in low moist valleys it cannot be depended upon. The other species of this fine genus are all notoriously tender, and only fit for house culture. This is, however, no reason why they should not be cultivated; for, in the course of time, large houses, like orchard-houses without artificial heat, will be erected in such groves of the tender and half-hardy Conifers will be cultivated. As places of re-ort in autumn, winter, and spring, such houses would be full of interest.

2. Our next family of tender Conifers is—*Arthrotaxus*, all the species.

3. *Callitris*.

4. *Cunninghamia sinensis*, *alias* *Araucaria lanceolata*.

5. *Cupressus* (the Cypresses).—These, with the exception of *C. Lawsoniana* and *C. nuthansis*, *alias* *Thuja borealis*, have all given way in the above districts, with the exception of some places favoured by soil and site.

6. *Fitzroya patagonica*.

7. *Libocedrus chilensis* and *Doniana*.

8. *Saxe-Gotha conspicua*.

9. *Sequoia sempervirens*.

10. All the Mexican Pines, and also *Pinus insignis*, *P. radiata*, *P. brutia*, *P. halepensis*, *P. pinea*, *P. australis*, *alias* *P. palustris*, and *P. macrocarpa*.

I do not mention the well-known tender species, such as *P. longifolia* and *P. sinensis*. The list of Mexican Pines is a long one: I refer your readers to Gordon's "Pinetum," in which a great number are described, most of them remarkable for the great beauty of their foliage, and quite worthy of being planted in a large and lofty Coniferous-tree-house.

11. The species of *Podocarpus* are nearly all quite tender. The only one that is hardy and which seems likely to form a small yew-like tree is *P. japonica*, known pretty well as *Taxus japonica*; *P. andina*, and *P. nubigena*, said to be hardy, grow very slowly, and have not survived the past winter.

The Coniferous trees and shrubs that may be planted with safety in the districts I have mentioned are the following:—I have given a few exceptions in some genera, which I think quite necessary, as they have proved quite the reverse of hardy—a term so often misapplied.

All the species and varieties of *Abies* or Spruce Firs, except *A. morinda*, which is so often injured by spring frosts. The Chinese or Eastern Arbor Vites (*Biotas*) have proved remarkably hardy in dry, hilly places in the above districts, except *B. meldonis*, which is a worthless plant, and *B. freneloides*.

The Cedars *atlantica* and *libani* may be reckoned perfectly hardy; but *C. deodara* and all its varieties have suffered to a great extent the past winter, many large trees and nearly all young trees having been totally killed; still it is such a beautiful tree while young that we must not cease to plant it. The White Cedars (*Chamaecyparis*), have stood unscathed, except *C. thurifera*, which need not again be planted.

The *Cryptomerias* although browned by the winter are not killed. They are in most places ugly trees, and grow badly in chalky soils. The irony loams of the Sussex hills seem to suit them well; but they require the fierce sun of Japan to give them full vigour. I fear we shall never see any of them approaching the altitude of those grand forests of Japan which we read of in old Thunberg and more modern authorities.

The Junipers are among the hardiest of Conifers, a few among them are graceful ornamental trees and shrubs. The following kinds must no longer be reckoned hardy:—*Juniperus Bedfordiana*, *J. gossainthaina*, *J. macrocarpa*, *J. oxycedrus*, and *J. phoenicea*.

The Silver Firs (*Piceas*), are among the hardiest and most noble of our Conifers; nearly all of the species may be planted with safety. I must, however, except *P. pindrow* and *P. Webbiana*, which are almost invariably injured by spring frosts. *P. cephalonica* is nearly equally liable to injury from the same cause; *P. religiosa* *alias* *Abies religiosa*, is quite tender.

The pretty little *Retinosporas* are perfectly hardy, although they turn to a reddish-brown in winter, as if they suffered from frost. *R. ericoides* is well known as *Cupressus ericoides*.

Of the numerous varieties of Yew (I am inclined to believe there is but one species in cultivation—viz., the common Yew), not one is in the least tender. Some of these are more curious than ornamental, such are—*Taxus adpressa*, *T. canadensis*, *T. Devastoni* (a Weeping Yew), *T. Jacksoni* (another Weeping Yew). The Yellow-berried Yew, and *T. baccata horizontalis*. The variegated Yews which form such glowing pictures at Elverton are, in the eastern counties, in most places very ugly, their rich golden colour turning into a dirty white, as if the plants were diseased. This occurs not only in light soils, but in those that are deep, tenacious, and rich. All the species of *Cephalotaxus* so yew-like in their appearance, are perfectly hardy and bid fair to be very ornamental evergreen shrubs.

The western or American Arbor Vite (*Thuja*) are now a fine group of Conifers—one of the finest. All are perfectly hardy, and two species bid fair to rival *Wellingtonia* in interest. These fine trees are *T. gigantea*, which, unlike our old brown species, retains its bright green colour all through the winter; and *T. Lobbii* or *T. Menziesii*—not so gigantic in its growth as the preceding, but a beautiful evergreen tree. Its foliage is of a darker green than *T. gigantea*, and much like that of *Cupressus Lawsoniana*.

The family of *Thujaopsis*, or *Thuiopsis*, so nearly related to the western Arbor Vites as not to be distinguished from them by a casual observer, is now reduced to one solitary member—*T. dolabrata*, a Japan tree of great beauty, and likely to grow pretty well in this country, not appearing to require the forcing climate that some Japanese trees and shrubs look for. The popular tree now well known as *Thuiopsis borealis* has been looked at by botanists, who seem always to possess a forty-horse steam power of vision, and found to be a Cypress. It will remain a Cypress till some clever man with a sixty-horse power of sight finds that it is neither a Cypress nor a *Thuiopsis*.

Among Coniferous trees and shrubs that may be planted in all soils and sites, with not only safety but with a certain prospect of gratification in seeing it grow well in our summer weather, whether hot and dry or cool and cloudy, and looking fresh and green all winter even in severe weather, is the *Mammotree*—our *Wellingtonia*, the *Washingtonia* of the Americans. Our great great grandchildren may live to see it attain a height of 150 feet or 200 feet in this country; and middle-aged gardeners may, perhaps, regret that they cannot keep possession of their tenements of clay till that time. For my part I am quite satisfied with the tree as it is; for while young and feathered to the ground with its graceful radiating branches it is most beautiful. As it increases in age it will doubtless lose its lower tiers of branches and become mop-headed, like the figures given of the large trees which still exist in California. I have, therefore, no wish to see it past its beauty; and all old planters will, I trust, go with me.

I have in the above rough sketch endeavoured to show what Coniferous trees and shrubs we ought to reject and what to plant in the colder parts of England. Much more remains to be done. Some educated nurseryman or gardener with a thorough practical knowledge must one day give the public more information on this subject. A catalogue entitled, "Conifers Suitable to the Climate of Great Britain," is far too vague. We require—1st, a list of the interesting yet tender species and varieties that can only be planted in the soft, mild climate of the west of England, the south of Ireland, and in Jersey and Guernsey; 2nd, a list of such as may be planted in the districts I have named at the head of this paper, describing the soils and geological formations in which and on which they grow most vigorously.—SENEX.

FLOWER MARKET.—A new flower market is just opened in the noble curvilinear-roofed Floral Hall, adjoining Covent Garden

Theatre. Messrs. Milne, of Wandsworth; Mr. Standish, of Bagshot; and Mr. Fergusson, of Stowe, have collections of plants there, varying in prices from 6d. to many shillings, all in pots. Messrs. Negretti and Zambra have a stand of horticultural implements. There are various stands for the sale of garden-pots, vases, and baskets; and Mrs. Stothard has a stall for her beautiful artificial flowers made of paper.

A CHAPTER ON HEATING.

HOP-KILNS, HOT WATER, FLUES, AND POLMAISE.

It is not surprising that after an unusually severe frost the subject of heating garden structures should occupy a considerable share of attention in gardening periodicals; for any imperfection in the existing means is sure to be noticed as well as the more successful modes. And every one will admit the winter just passed to have been a trying one, and any scheme that has satisfactorily passed such an ordeal may be justly regarded as a meritorious one; and it is possible we may have several new schemes for hothouse heating offered to us with the warrant that they have stood the test of the past winter—and this is no mean qualification to found their claim upon.

I am far from certain that our very best modes are not exceedingly wasteful, not even exempting the best-contrived hot-water apparatus, or the recently-revived system of heating by hot air, called again into notice by Mr. Beaton and Mr. Kidd, which, doubtless, is a great improvement on previously existing means of heating in that way; but which is, doubtless, far short of what one day will be effected by the united exertions of those who may give the consumption of fuel and the heat it emits their close attention. In saying this much I by no means deprecate many of the useful plans now adopted; but I do not think any of them give all their warmth to the objects requiring it.

Some years ago I was much struck with a remark in a philosophical work of high standing, which was this: "The ascent of Mont Blanc was a laborious undertaking for an able-bodied man for two days, yet the combustion of 2 lbs. of coal ought to place him on the summit." This astounding assertion might have been questioned had it been made by a less eminent authority than Sir J. Herschel, for it was in one of his works that I read it; and although I do not remember his entering into any particulars of the natural or artificial powers just then compared, I have no doubt but the influence—the burning of this coal—exercised as much force over the external air as was equivalent to the raising of a human body the many thousand feet spoken of.

Now, this may appear to have little relationship with hothouse heating; but it may have, if the waste of coal be so great as the author quoted makes it to be. What improvements may not yet be expected? But let us turn to other subjects bearing still more directly on the matter.

The economy of heat has for many years been a source of study with those who have had the warming of buildings, for which fire heat, in some shape or other, is required; as, for instance, maltings, hop-kilns, laundries, workshops, churches, and public rooms, and the various classes of garden structures, which, for distinction, we may call hothouses. To this list others may be added; but enough have been enumerated to prove that attention has been directed this way.

Of the first-named of these (maltings) I have but little knowledge; neither is fire so much an accessory as in the hop-kiln. The due administration of heat being an important matter; and as several modes have been adopted, one of which so closely resembles that which has so recently attracted attention as a modification of Polmaise, that I make no apology for saying a few words on the hop-drying system as practised in this neighbourhood, where that article forms the most important of all crops, and its preparation for use is, of course, an equally important consideration.

I believe that our important crops are all perfected, or, I should say, harvested, in the open air, except in very bad seasons. But this is not the case with the hop; for, gathered in October, the sun at this period, even in the finest of all seasons, is not sufficient to dry up the superfluous moisture by which the article is charged, and it is more often wet than dry at that time; consequently fire heat has to be resorted to. And though there are many modes of applying it, there is but little difference in the kilns, which are generally circular brick buildings, of an inside diameter of from 10 feet to 18 feet, the sides being from

12 feet to 18 feet high, with a long conical roof, and an opening from 2 feet to 3 feet in diameter at the top. This is protected from rain by a cowl which turns with the wind. I may add that the floor on which the green and wet hops are laid is 2 feet or 3 feet below the eaves, and from 9 feet to 15 feet or more from the ground. The hop-drying floor is constructed of rafters laid about 2 inches apart, and over them a hair cloth is fixed. The timber used is usually poplar, which is the best to resist fire, and the hair cloth is also less liable to accident that way than anything else, and at the same time admitting the heat to pass freely through it and amongst the hops lying on it.

Now, from the under side of this floor to the ground level there is often a clear space of from 9 feet to 15 feet, and which has to be heated for the purpose of drying the green and damp load above, which is often laid on nearly a foot thick, and must be dried in ten or eleven hours; two such loadings being always dried every twenty-four hours, a rapid fire heat is therefore required. One of the modes adopted having so strong a resemblance to Polmaise, I cannot do otherwise than describe it. At the bottom of one side of the kiln in question a firehole is made, and a fireplace, similar to one that might be underneath a saddle boiler, is placed; but instead of the boiler a large cast-iron box like a trough is turned upside down over the fire, a square opening at the side opposite to the fire being made in one side of this box to allow the smoke entering a flue; and there is often a piece cut away in the front side of this box that is over the fire to allow room to feed the fire. The flue from this fire goes round the kiln, but does not join the outside wall, and the flue is sometimes raised on pillars also, so that all sides of it may communicate heat to the space requiring it, a chimney eventually carrying it out at some place where it unites with other buildings. Dampers in the flue regulate the draught, and openings in the outside wall with sliding shutters in front of them regulate the admission of external air, and the fire, being as described, inside the room requiring heating, we have as near as possible the mode of heating described and discussed with such a diversity of opinions in the gardening press about a dozen or more years ago as Polmaise; only in the case here mentioned the air to be heated is drawn from the open atmosphere, and is not worked in the rotary motion which baffled so many of the advocates for Polmaise.

Now, the flues in this hop-kiln were generally made of the best material, and when once got into working order were kept actively at work for the season, and appear to be constructed on a principle likely to economise heat, yet, it was found not to be so, and this class of hop-kilns is now almost obsolete; and although, as I have before said, it embraces almost all the points of Polmaise, it is more than fifty years since it was generally discarded. How long it is since it was introduced I leave for others to determine. Suffice it to say that its only claim to notice now is its adaptability to all kinds of fuel, which is not the case with the modes of heating now more generally in use, which, though hardly applicable to the general purposes of hothouse heating, may nevertheless be described here.

Instead of the covered-in fire before alluded to, an open one on bars and a little brickwork is fixed in the centre of the kiln; and immediately over this, but perhaps 6 feet from it, and 3 feet or 4 feet from the drying-floor, is suspended in chains a piece of plate-iron 4 feet or 5 feet square, and, being hung flatways, prevents the direct heat of the fire scorching the centre of the drying-floor immediately over it. This fire, however, is composed of charcoal, coke, and Welsh coal; and being open as stated, its action is very powerful on the floor above; and it is required so to be, as the thermometer is often kept at 130°. The wonder a stranger evinces is that the timbers composing the floor do not ignite; but poplar will bear a great deal of baking, and hair cloth still more so: nevertheless, fires do occasionally occur. It is right also to add that outside openings admit air to fires of this class also; and a recent patentee has surrounded his fire with pipes, one end opening into the fire, and the other to the open air—the pipes, of course, inclining from the fire outwards. Others, instead of having the iron plate hung as described above as a safeguard, have a number of cast-iron pipes crossing each other just over the fire, so that the fire heats the ends that are over it; and the air rushing out is also heated and carried upwards, its place being supplied by the air entering at the other end, which is outside. Many other modifications of these plans are in use, which might be profitably studied by those having the heating of hothouses in view—not that the open charcoal and coke fire here spoken of is eligible

for plants generally; but the heating here given to air, and the other principle on which its working depends, offer many hints to those inclined to turn them to account.

The above digression is given with a view to show that heating by warm air has been practised many years in some form or other; and some churches and public buildings are, I believe, heated on that principle; but by far the greatest number of workshops and buildings of a small kind are heated by an Arnott's stove, modified more or less to suit the circumstances of the place, and I must confess that no description of heating that I am acquainted with gives off so much warmth in proportion to the fuel used as a well-constructed Arnott's stove. An ordinary laundry stove I conceive to be of this class, and nothing can so quickly raise the temperature of a room as this does; and if some skilful hand could divest it of that unpleasant vaporous smell, it might be worked usefully in heating our garden structures.

It is not my purpose to enter into the nature of the gases generated by a stove of this kind; but every gardener knows, by a single whiff, that it is unsuited to plant cultivation. To chemists we therefore say, Purify it, and you will confer a boon alike on the vegetable and animal creation. And those who live long enough may possibly see this done. And when this has been fairly set into working condition, I have no doubt but we shall be several stages nearer that summit of perfection which has been aimed at in so many things; for I cannot bring myself to the belief that heat communicated to one object, and that object having to impart it to a second one, and this in turn to a third, and so on until it reach the object wanting it—much of it is not lost. We all know the more garments we have on when the weather is cold the less likely is the cold to reach us; and heat that has to be transmitted through several inches of brickwork, and then to travel some distance along a flue, withdrawing portions of its heat all the way as it travels, cannot emerge from its orifice in other than a much wasted condition.

In making the above observations I by no means intend to disparage the many useful heating apparatuses now in use at various places. What I want to see is, a material brought into practical use that will withstand fire heat, and not give off those unpleasant vapours which an iron stove invariably does; for be it remembered, the material ought not to be thicker than the iron plates of the Arnott's stove. If we could accomplish this, I think much, if not all, of the waste heat bestowed on the fireplaces, flues, and chambers, would act directly on the hothouse; for the whole apparatus, if prepared in a neat and tasteful form, might be inside. An opening to feed it with fuel and clean out the ashes might be made from the outside; but this ought to be closed as far as possible against external air. I have often pictured to my mind a heating apparatus of this kind, but am unable to suggest a material to make it of. Iron, as stated above, is objectionable, and brick is too thick. I should think a fireplace or stove formed of the material of which crucibles are made would be sure to stand heat well, as they are often heated to a white heat, and I have heard a manufacturer of cement articles assert, that cemented goods when well made will also stand an equal amount of heat. How far these two substances will not occasion those sulphurous or obnoxious gases which an iron stove is unable to avoid, I am unable to say. But the object is worth trying for, for with all our boasted skill it must be confessed we have made fewer improvements in heating garden structures than has been made in the construction of living-room stoves, kitchen ranges, and the like for the last thirty years, for I could point out a church that was heated by hot water in 1830, that has not been excelled yet, I believe, by anything of the kind since introduced. True, this useful agent has been brought into more general use, and made to ascend and descend where it was never expected to do; but it is an expensive affair, and now and then, like everything else, breaks down at the most unfortunate time for everything and everybody concerned.

A writer in THE COTTAGE GARDENER, at page 258, Vol. XXV., (Mr. Cullerne) expresses his unwillingness to advocate the Polmaise system because I had opposed. I am exceedingly sorry at this, for I by no means assume my opinion to be infallible, and I am equally pleased to find my views opposed by others, as well as confirmed by them, especially when a good sound reason is put forth for doing so, or, what is still better, a good bundle of facts. I think the most I said or intended to say against Polmaise was, that it was wasteful in fuel and liable to go wrong; but where it did work well, no mode of heating that I am acquainted with can equal it. A particular friend of mine had a spare pit heated

in this way; and as he was an enthusiast in that mode of heating, he used to point to the waving foliage of the plants when the house was closed as a proof of the circulation of air going on, and has told me he could cook an egg at one of the hot-air openings 30 feet or more from the fire, and certainly nothing could look better than the plants by which it was filled, for it was used for forcing. But I believe he had one or two sad misfortunes with it, and at all times it was extravagant in fuel, so large a portion of the heat escaping up the chimney. It is for this reason, and the consequent uncertainty of iron plates standing the fire, but cracking and filling the house with smoke, that I have advised the inexperienced to have nothing to do with it. Buried beneath a mass of brickwork it may, doubtless, be safe, but its heating powers must of necessity be much diminished unless urged on by extravagant firing.

Our able coadjutor, Mr. Fish, has very judiciously put before us boilers of various kinds, and alluded to their working qualities, and the many other points connected with hot-water heating, as well as that by flues; and there is one point in the latter mode which I wish to add to what he has said on this matter. It has always been my opinion that when a heat of only 40° or 45° is wanted, an expensive heating apparatus ought to be avoided, and to this end a good plain flue is often available. We have two span-roofed plant-houses here, each 36 feet long, intended for ordinary greenhouse and New Holland plants; these are heated by flues travelling round each house in the usual way, and ascending a chimney just over the fireplace. The two houses being in one length, the two fireplaces are just behind the wall at the partition; a front shelf about 3 feet broad, and a path about the same width traverse the entire length, the rest of the house being stage and platform. There is nothing particular in the heating, only that the flue which passes underneath the front shelf, and also that part which passes under the stage, is composed of cement pipes, 12 inches in diameter inside, and about an inch or rather more thick in substance; the ends being brickwork, more for the convenience of cleaning out at any time than anything else. These cement pipes are made in lengths of 30 inches or 3 feet, and have joints fitting into each other, and I can certify to their answering every purpose that can be wanted of them. The cost for Roman cemented ones being 1s. 2d. per foot, and for Portland, 1s. 10d., but either kind answers well. The flue rises and falls at the doorways where it crosses the pathway; but the rise and descent are both gradual, and not abrupt; they heat very well, and with less trouble than any hot-water apparatus we have. Observe, I do not mean to say that flues of this description ought to supersede hot water for regular and continued forcing; but for greenhouses, or structures requiring little more than the frost kept out, a flue is a much cheaper apparatus than hot water. All that is necessary to insure its action is to get the fireplace set low enough, and to have a few feet of upright chimney to end with, and let all the turns be easy bends; and when the flue must descend let the top do so as well as the other parts of the flue, for I believe the smoke travels along at the top, and ought not to meet with such an obstruction as a piece of perpendicular brickwork, or anything that way; and although all descriptions of brickwork give off unpleasant exhalations when first the fire is used, after being some time idle, this may in a great measure be guarded against by making the fire in the daytime, and opening the ventilators. Still, with even this drawback, I cannot bring myself to the belief that it is inferior to some of the toy kinds of hot water apparatuses, which are said to burn little fuel, and require little attention, but which are also very liable to very great uncertainties. A good useful hot-water apparatus of some size is another thing; but to make a fire in a place not larger than a man's hat, and expect that to keep burning many hours, is at variance with all my notions of utility. But I must conclude with again requesting our scientific friends in the fire-stove line to come forward and give us a helping hand; for so long as we waste so much heat on brickwork not wanting it, and in other ways allowing it to go up the chimney, so long is our heating-apparatus imperfect, and the sooner they are improved the better; for it must be confessed, nothing in the garden line, has made so little progress for thirty years or more.

J. ROSSON.

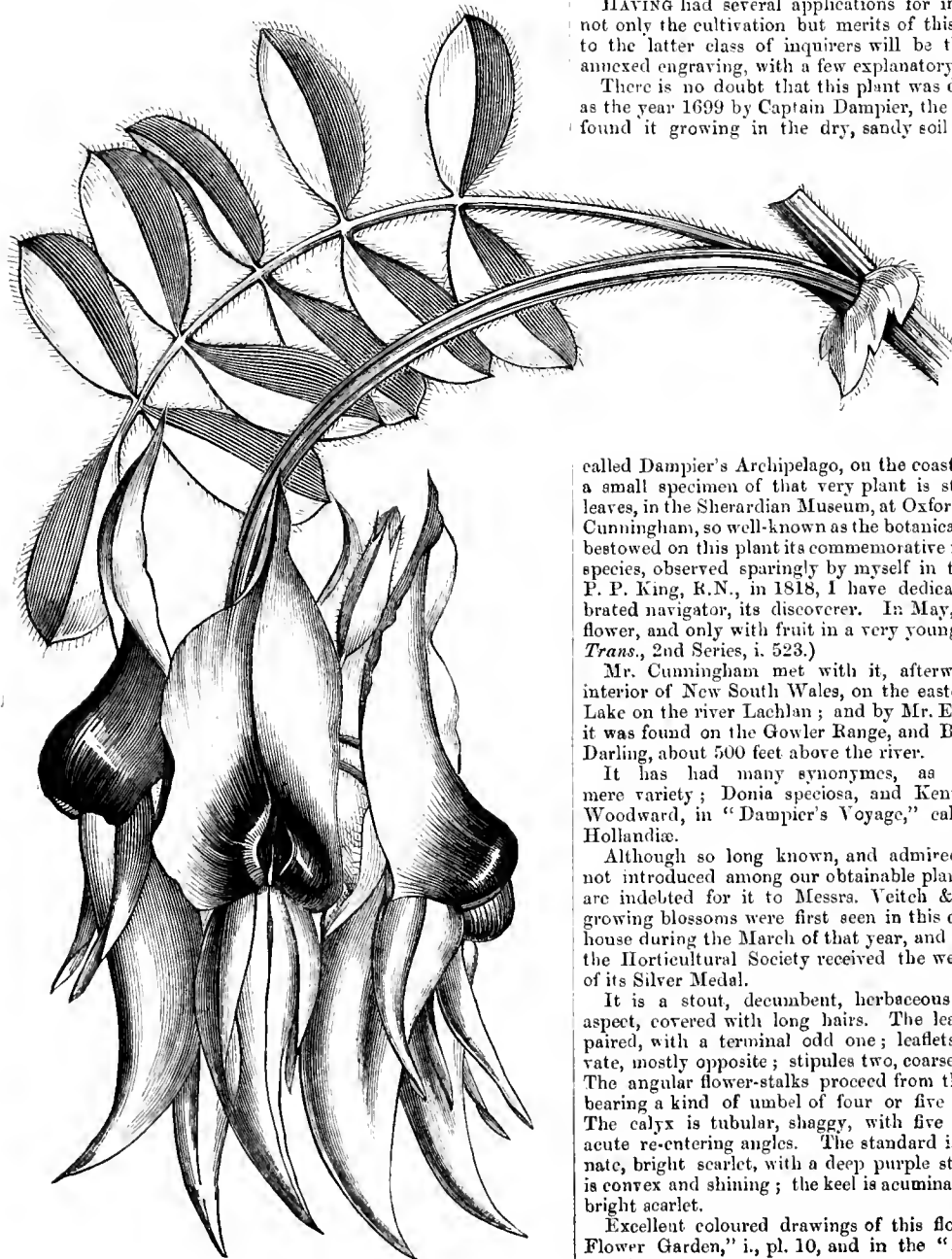
THE FAIRCHILD FLOWER SERMON.—The "Flower Sermon" was preached, as usual, on Whit-Tuesday evening, at St. James' Church, Aldgate, by the Rev. W. M. Whittemore, rector. The gaily-dressed young people, with their bouquets of flowers, made

the old church look quite attractive. The preacher's text was Psalm ciii. 15, and his topic "Wild Flowers." From these he drew various lessons of the Divine goodness; of the wonderful variety observable in the works of God; of the striking difference between the natural and the gracious states of the heart of man; and of the fading character of all earthly hopes. The Sunday Bible Classes, which are held at this church on Sunday afternoons, are open to all young ladies and gentlemen who are desirous to attend.—(*City Press*.)

CROSS-BREEDING SWEET PEAS.—I perceive Mr. Beaton, in *THE JOURNAL OF HORTICULTURE*, May 14, says he does not know of any one who has obtained a true cross in any of the Pea-flowering plants. I do not know if the following will interest him. About the year 1836 I crossed the Painted Lady and Purple or Puce Sweet Peas. I obtained very few seeds, and these the next season produced grizzled and striped blooms, being a mixture of the two colours. I do not know if Mr. Beaton will consider this a true cross.—B. P. BRENT.

CLIANTHUS DAMPIERI.

Nat. ord., Papilionaceæ. Linn. Diadelphia Decandria.



HAVING had several applications for information concerning not only the cultivation but merits of this plant, our best reply to the latter class of inquirers will be the publication of the annexed engraving, with a few explanatory notes.

There is no doubt that this plant was discovered as long ago as the year 1699 by Captain Dampier, the circumnavigator. He found it growing in the dry, sandy soil of one of the islands

called Dampier's Archipelago, on the coast of New Holland, and a small specimen of that very plant is still preserved, without leaves, in the Sherardian Museum, at Oxford. The late Mr. Allan Cunningham, so well-known as the botanical explorer of Australia, bestowed on this plant its commemorative name; he says, "This species, observed sparingly by myself in the voyage of Captain P. P. King, R.N., in 1818, I have dedicated to that very celebrated navigator, its discoverer. In May, 1818, it was found in flower, and only with fruit in a very young state."—(*Hort. Soc. Trans.*, 2nd Series, i. 523.)

Mr. Cunningham met with it, afterwards, in the western interior of New South Wales, on the eastern shore of Regent's Lake on the river Lachlan; and by Mr. Eyre and Captain Sturt, it was found on the Gowler Range, and Barrier Range, near the Darling, about 500 feet above the river.

It has had many synonyms, as *Clianthus Oxleyi*, a mere variety; *Donia speciosa*, and *Kennedyia speciosa*. Mr. Woodward, in "Dampier's Voyage," called it *Colutea Novæ-Hollandiæ*.

Although so long known, and admired by botanists, it was not introduced among our obtainable plants until 1850, and we are indebted for it to Messrs. Veitch & Sons. Its splendid-growing blossoms were first seen in this country in their greenhouse during the March of that year, and being exhibited before the Horticultural Society received the well-merited testimonial of its Silver Medal.

It is a stout, decumbent, herbaceous perennial, of a pale aspect, covered with long hairs. The leaves are pinnate, five-paired, with a terminal odd one; leaflets oblong, slightly obovate, mostly opposite; stipules two, coarsely toothed or slashed. The angular flower-stalks proceed from the axils of the leaves, bearing a kind of umbel of four or five most brilliant flowers. The calyx is tubular, shaggy, with five acuminate lobes, and acute re-entering angles. The standard is ovate-oblong, acuminate, bright scarlet, with a deep purple stain at the base, which is convex and shining; the keel is acuminate, and, like the wings, bright scarlet.

Excellent coloured drawings of this flower are in "Paxton's Flower Garden," i., pl. 10, and in the "Botanical Magazine," t. 5051.

WHAT CAUSES A DRAUGHT?

THE REASON THE KIDDEAN IS PREFERABLE TO THE POLMAISE SYSTEM OF HEATING.

Is there one person in ten who knows why there is a draught in a flue, and why raising the chimney increases the draught? I think not. And as I want to have a say about the Polmaise and Kiddean systems of heating, will you let me clear the way a little before I commence my discourse?

Let us suppose that we have a glass tube shaped like the letter U; that each leg is 6 inches long, and each aperture 1 square inch in area, and that the one leg is filled with water weighing (let us say) $2\frac{1}{2}$ ozs., and the other with a like bulk of oil weighing (we assume) $1\frac{1}{2}$ oz. Of course, one-half the oil will be driven out unless pressure is applied to restrain it; and if we put a valve on the oil aperture, that valve must be loaded with a weight of 1 oz., in order to prevent the oil from flowing.

Let us now imagine the bulk of water and of oil doubled by increasing the diameter of the tubes, then the pressure at the oil aperture will be 2 ozs.; but as the area of the aperture will be doubled also, the pressure will still be 1 oz. to the square inch. If, however, we double the bulk of water and oil by doubling the height of the tubes, still keeping the area of each aperture at 1 square inch, then the pressure at the oil orifice will be 2 ozs. to the square inch, and the oil, if it escapes, will escape with double the velocity which it would have done in either the first or second case above mentioned. Here, then, we have the first method of increasing the force of the outward current—viz., increasing the height of the differing columns.

Now, suppose that we retain the tubes at their original height of 6 inches, and for the oil weighing (by hypothesis) $1\frac{1}{2}$ oz., substitute a like bulk of ether weighing (by hypothesis) half an ounce only, then—although the height of the column remains the same—the ether will flow out with a force of 2 ozs. to the square inch. Here, then, is the second way of increasing the force of the outward current—viz., increasing the difference between the weights of the two columns, their height remaining unchanged.

Let us apply our example:—The water represents the column of cold air outside a flue, the oil the lighter warm air within it. And if we make that warm air into hot air, we shall produce an effect like that which followed when we changed the oil for ether.

Now, in Polmaise, the column of air between the heating surface and the point of exit is so short that in order to get a circulation of any considerable velocity we must resort to the second of the before-mentioned methods—namely, intense rarefaction of the air in the chamber, and this more especially if there is any adverse pressure to be overcome.

This intense rarefaction cannot be obtained without intense combustion in the furnace, and this intense combustion cannot be maintained without a great waste of heated air up the furnace chimney: therefore, the obtaining a circulation by means of undue rarefaction gives rise to the following evils:—1, Waste of fuel. 2, "Burning the air" by the excessively hot surface required. 3, Splitting the furnace and cracking the iron, from extreme expansion and contraction. These are, I think, the usual objections to Polmaise. Now, the Kiddean system obtains a circulation through the hot-air chamber by the first method which I have pointed out—viz., increasing the height of the column of warm air, and so gets rid of the three evils which arise from pursuing the second method, while all the good points of Polmaise are retained.

Had I to apply the Kiddean system on a level I should have an opening from the lowest point of my greenhouse into the bottom of the hot-air chambers, and the place for the escape of the hot air should be high up in the house; but I would not have a cold-air drain or hot-air flue, except so much of the latter as would be needful to give me the height of column I might require. The hot air is sure to find its way to the top of the house; why, then, not deliver it there where the loss of heat takes place? I would trust to the cold-air current to diffuse the heat through the house; for the air-chamber being at the lowest point of the house the coldest air for the time being would collect there, and so soon as that rushed in to be warmed, some not quite so cold would take its place, and so on. Of course I would have an opening from the air chamber to the outer air, so that I could ventilate at pleasure.

I firmly believe that a large house might be heated without flues, or drains, or any of the apparatus which our friends the hot-water folk will have it cost as much as pipes.—E. H., Bromsgrove.

WORK FOR THE WEEK.

KITCHEN GARDEN.

TRENCH up every spare piece of ground for the first plantation of winter stuff. The ground to be trenched 2 feet deep, and a good coat of manure to be dug in, when it will be ready for planting with Broccoli, Brussels Sprouts, &c. The Broccoli to be planted 2 feet apart each way. If fine heads are desired, a ring of hot lime to be placed around each plant of the Cabbage family to protect it from slugs. *Asparagus*, give the beds good soakings of liquid manure from the melon-ground cesspool, or from horse-droppings. Keep the surface of the beds free from weeds, and well pulverised by frequently hoeing between the rows. Where the supply from the established beds is abundant the weakest shoots may now be allowed to grow. *Cardoons*, sow a late full crop. Plant out the early crop; if they were sown in a seed-bed choose a rich piece of ground for the purpose. It will not be advisable to plant largely of the first crop, as it soon runs to seed. *Cauli-flowers*, liberal applications of liquid manure to be given to them. *Celery*, plant some of the most forward into trenches. Keep it well watered in dry weather. Continue to prick out from the seed-beds for late crops. *Cucumbers*, keep up the bottom heat of the principal beds if fine long fruit is desired. *Dwarf Kidney Beans*, earth up those that have been planted out, and sow again. *Endive*, make another small sowing. *Lettuce*, make a sowing of different sorts for successions. *Potatoes*, hoe between the rows, to loosen the earth and destroy weeds. *Sea-kale*, thin out the heads so as not to allow them to crowd each other, and water once or twice during the growing season with a weak solution of salt and water—viz., 2 ozs. of salt to a gallon of water. *Turnips*, make a good sowing for early autumn use. Thin out the advancing crops. *Vegetable Marrow*, plant out on a rich piece of ground where there is plenty of room for it to grow.

FLOWER GARDEN.

The directions given last week are still applicable to operations going on here. *Heliotropes*, *Ageratums*, and tender annuals may now be planted out with safety. As soon as the beds are all filled and finished off, plant out into the flower-borders some of the odds and cuds which were left reserving a few to receive high cultivation in order to fill up blanks either in the houses, beds, or borders. Attend to the sticking of Carnations and Pinks as they grow, it will greatly enhance their appearance when in bloom. Plant out Dahlias, mulching and watering the soil liberally in dry weather. Masses of American shrubs under or near large trees would be benefited by a top dressing of half rotten leaves or old tan, with a liberal supply of water in hot weather, to keep them cool, and to compensate in some measure for the exhaustion occasioned by the roots of the trees.

FRUIT GARDEN.

Keep an eye on the Gooseberry caterpillar, and let blooming Strawberries be well supplied with water. Where black fly has attacked Cherry and other wall trees give them thorough good washings with the engine: pure water to be used for the first time, which will partially destroy them. A good washing of soapuds and clear water to be applied by the same means, and on the following day another good washing to be given with clean water. The same practice to be persevered in until the pest is entirely removed.

GREENHOUSE AND CONSERVATORY.

When the cold pits and frames are cleared of the bedding stock they will be the most suitable places during the summer for the growth of many things for the autumn and winter decoration of the conservatory. It is not advisable to continue the stopping of the stronger shoots of *Epacris* after they have attained a fair blooming size as it eventually leads to the production only of weak, small shoots which cannot bring many flowers. When the plants are allowed to form moderately-strong shoots the flowers, from being produced at almost every leaf, grow in long spikes, and are then finer and more vigorous than under the opposite circumstances when the plants are continually topped, so that the shoots become small and weak. As the habit of these plants is to produce long shoots, they must be annually pruned into form, and even beyond this any luxuriant shoot that appears may be turned to account by the practice of stopping. The present is a good time to sow a supply of Chinese Primroses for the winter. Get them potted off early, and keep them shifted and growing in a cool frame where they can have plenty of air and some protection from heavy rains. Use a

light, rich, loamy compost; a cool temperature, with plenty of air, gives a high colour to the blooms. Repot Melocacti, Echinocacti, Mammillarias, &c., if necessary using good loam intermixed with charcoal broken to the size of nuts. Place them in a hotbed where the heat is gentle; give them a moderate share of fresh air, and a supply of clear, weak manure water once a-week. This treatment to be continued for a couple of months, when they may be removed to a greenhouse to ripen their wood, and afterwards to be set in a hot, dry place out of doors for a few weeks before housing. Pinch off the decaying blossoms of hybrid Rhododendrons, give them liquid manure, and, if wanted for early work, give them a warm place to force them slightly into wood.

W. KEANE.

DOINGS OF THE LAST WEEK.

WEATHER hot and scorching during the day, cold at night; nevertheless the ground is getting warm. Continued routine of work much the same as last week. Repotted Begonias, Gloxinias, Achimenes, and brought the latter from under the dense shade of Vines into a later house, where they have a little more light: cannot yet give them a better position. All plants in pots required a great deal of watering. Noticed for the first time a little red spider on two or three *Strawberry plants* on a lofty shelf in theinery; whipped them out at once, and will get forward ones from such places near the apex of the roof into a garden-frame as soon as possible, as that will give heat enough for forward ones if the weather keeps sunny. Have tried Sir Harry for forcing, we think, for the last time—the fruit, though large, being few in quantity. Ingram's Prince of Wales has done well; and Queens, of which I have gathered none, are swelling nicely. These two last and Keens' will be our main croppers next year, with a few of Black Prince for early ones. Strawberries out of doors have had the Dutch hoe run through the rows to prevent the stiff ground cracking; and in some instances have been stirred with a steel fork an inch deep or so, but not more. A gentleman told me the other day he had his all dug between, because he saw it recommended in some gardening book!! Oh, the poor roots! From the time of planting until they are dug down we should think it next to sacrilege to admit a spade among Strawberries. A few flowers have been blackened, but at present the bloom is extra in strength and profusion. The plants have already had a soaking of manure water, comfortably warm, and would rather like another dose, and must have it if the rain does not come soon in good earnest. Litter from the stable has had the dung shaken out of it pretty well, to be saved for Mushrooms; and the litter will be placed between the Strawberry-rows as soon as the ground has been well watered naturally or artificially. This litter will be washed clean before the Strawberries are ripe; but those extra fastidious should use a little clean well-thrashed straw at once. Many use short grass from the lawns, and almost anything is better than allowing the fruit to lie on the ground; but in wet seasons the grass is apt to be imbedded into the fruit, and in all seasons you are sure to have a rare crop of daisies and other weeds. All our trials of slates, tiles, &c., led us to the conclusion that the advantages they rendered were too problematical to recommend them for general use. In a small place, however, they certainly promote cleanliness, and in bright weather the fruit ripens sooner; but in very hot weather it is apt to be something like parboiled. Any contrivance, however, is better than letting the fruit lie on the ground. Where litter is inconvenient, little sticks, the diameter of the little finger and 18 inches long, stuck along each side of the rows 4 feet apart, and a small string run along from one to the other all round will keep the fruitstalks nicely up, and the plan looks very neat and the fruit very inviting. But perhaps it may be only a fancy of mine, but certainly I have thought that Strawberries, whether in pots, in houses, or in the open air, did not have such a good chance of swelling freely and to a large size as when the fruitstalk was allowed to hang down. The very weight of the fruit would thus bring more juices to sustain itself by the strain thus given.

Everything else, however, this last week has had to give way to preparations for bedding out in the flower garden. We seldom do much until the 20th. However, on the 18th we put a row of *Salvia fulgens* round some large beds of Hollyhocks and Pillar Roses, the Roses being all cut to the ground and many gone altogether. A band of *Coreopsis bicolor nana* was

placed round the *Salvias*, to be followed by *Asters*, there being a band of Musk next the outside. On Monday the 20th we commenced in earnest, chiefly with *Calceolarias* and *Scarlet Geraniums*. We pot no *Calceolarias* in general, nor *Ageratums*, and very few *Scarlet Geraniums*. Some of the latter did not lift so well as usual, owing to the material in which they were planted being too deep and light; but they will only flag a little for a few days, and most of them are standing as well as if they had come out of pots. And most things so planted, we are convinced, do better afterwards than plants from pots, unless there are the time and the care taken to break the balls and disentangle the roots, which would be a serious affair when thousands must be quickly disposed of. The bedding-out plan in intermediate beds, to grow and harden before final planting out, has another advantage—a greater number can be carried or wheeled to the ground in boxes or sieves, and then there are no pots to bring back. Some of the tenderer variegated *Geraniums* do not do so well when thus planted out and lifted; and in their case we find it best to pot singly in small pots, encourage growth until the pots are pretty well filled with roots, and then turn them out into intermediate-beds into rough soil and leaf mould, and to be protected as long as they need it. If the bottom ground is hard, these will do all the better. This saves almost all watering previously to planting, and the plants are nicely furnished with roots, which strike into the ground at once. Of course, growers for sale must, to a great extent, use pots.

As I find it impossible to do much in the way of changing the soil, I generally as much as possible change the cropping every year. This was easier to do in the old bedding system where great breadths were made of one colour; but it requires more trouble and consideration, since stripes, and dots, and crosses have become also a part of the fashion. Thanks to an esteemed coadjutor, I have hardly a thing to tell. If I have a regret at all, it is that in saying so much of the bedding, &c., he picked out so few faults. The sunk garden, which is not at all in unison with his artistic taste, remains as it was; but planted differently, and with slight bands round the beds, which will tend to make the grass paths look wider. Its very simplicity makes it, perhaps, easier planted than a more artistic design, such as I have no doubt our friend would soon place in such a good position for seeing the colours of the whole plot all at once. The designs of all the other borders are also altered. Whether improved or not is another question; but I fear that telling about all the little ous and ins about them would hardly be in unison with this gossiping article, though we can think of little else at present.

The weather being so uncertain, and some of the plants intended for groups being rather small, we have been forced to leave many designs unfinished, and even to pot some things, and give them a fortnight or three weeks' nursing. This is much better than running risks, though I find my handy labourers do not like it so well. The work seems to go on with more zest when they see it all and finish as they go; and when it is necessary to leave out tenderer plants the whole matter should be fully explained, as every man works better when he sees the object and design of his working. A bit of a rogue once told me that the hardest work and the greatest punishment he ever received was being compelled to carry stones from one heap to another and back again, to serve no object whatever, but to keep him on the trot. The treadmill was nothing to it if the mill was made to serve any purpose of utility. The same principle applies to all labour. It is better done, more cheerfully and zealously performed, when the worker sees the object of his work.

Among the things for which we must wait a week or two are *Perilla nankinensis* and *Cineraria maritima* seedlings. The *Perilla* may be strong enough by the end of the week, but the *Cineraria* will require the best part of a fortnight, being just potted singly in 60-pots from boxes, in which they were pricked out thickly from the seed-pan. I still like cuttings best, but the last winter killed most of the plants, though they had stood well previously out of doors until I wanted them: and therefore, fearing the cuttings would be deficient in quantity for spring propagation, I sent for a sixpenny packet of seed; and I think in a fortnight I shall have some five hundred nice little compact seedlings, 3 inches to 5 inches high, in fine order for turning out. The cuttings are already planted. A correspondent who lately made inquiries about these seedlings may, therefore, be confident of their answering; still I like cuttings by far the best.

One peculiarity I must just mention. Every plant has a little compost put round its roots, formed of equal parts of rough leaf mould roughly riddled through an inch sieve, sandy fresh loam, riddlings from the potting-bench, and the burnt earth and charred rubbish spoken of last week. This all mixed together is just nice as to dryness and nice and warm to put round the tender roots, and no check is felt from coming at once in contact with the cold ground. A friend who was pleased with the half-burned, half-charred heap thought plants could not have too much of a good thing, and used it too hot and too much by itself, and then wondered the plants did not get on nicely. He forgot that it was possible to surfeit plants, just as a man may eat too much beef or take too much wine.

One word more. In very sunny weather it is useful to shade the tenderer plants, that show the moving most, with a few small evergreen branches, such as laurel or any twig of deciduous trees if in leaf. If not securely put in the ground, however, the sweeping of these by winds will do much harm; and besides, there is the trouble of getting them, their unsightliness stuck over the place, and the bother of clearing them off again, and sweeping and picking up the leaves that drop from them. Unless in extreme cases and where a little protection may be needed, as in the case of *Heliotropes* turned out earlier, I find that the same object may be gained by sending a boy to syringe the tops several times during the day. Mere watering at the roots after being done sufficiently, will not by repetition, when not wanted, affect the flagging of the foliage; but the syringing will. When a large space has to be done a man takes a garden-engine, and by regulating the discharge into a mist, like dew more than anything else, the leaves are moistened and the ground partially, so that a humid atmosphere is kept around them and prevents them perspiring too freely. Thus used, a potful of water will do more good than a dozen applied either by spout, or rose, from a pail; and as for liking the work, there seems a sort of mesmeric attraction between all kinds of squirts and boys pretty well of all ages and sizes.—R. F.

APPROACHING FLOWER SHOWS.—We would draw attention to the very liberal prizes offered by the Belfast Botanic and Horticultural Company. We hear that it is likely to be a very superior exhibition. The Royal Agricultural Society of Ireland hold their meeting at Belfast during the same week. We are very pleased to find that at Liverpool and other large towns, induced by the example of Bloomsbury, shows strictly confined to plants grown in streets and alleys are being announced. On the 30th of July there is also a Flower and Allotment-holders' Show at Kingscliff, in the grounds of Archdeacon H. K. Bonney. The exhibitors are such as do not keep a gardener, cottagers, and children, all judiciously classed. Of all these we should like to have the reports.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c."* 162, Fleet Street, London, E.C.

PLANTS FOR WET PEAT SOIL (*A Subscriber*).—Unless you mean such plants to be of no use or ornament, but only as botanical rarities, the peat earth from the fens of England, or the bogs of Ireland, or the moss hags of Scotland, will be of no use to you except as dressings to very light or very heavy land. *Drosera rotundifolia*, *Pinguicula vulgaris*, *Eriophorum polystachyon*, or Scottish Pampas Grass, and the *Rubus arcticus*, the wild Raspberry of Scotland, and the Scottish Cloudberry, the best native fruit of all the Highlands, are the only plants out of scores which grow on bogs and boggy peat that we could recommend for cultivation; but there are very few gardeners who could grow and fruit these plants for you anywhere.

MANURING VINES (*A Subscriber*).—If your Vines are vigorous, and, as you say, they are swelling off their fruit well, they will probably need little assistance by manure. If the Vines are rather weakly you may give them some liquid manure made of the pigeon's dung you mention. Take care to keep the roots well supplied with moisture, and warm by covering at night if cold, wet weather occurs, as they are planted outside.

JOB'S TEARS (*H. M.*).—The bead-like, flattened, opal-coated seed which you enclose, resembles a falling tear, and is produced by a plant known as "Job's Tears" as long since as the time of Gerard, who in 1596, cultivated it in his garden in Holborn, under that name. It is a species of grass called by botanists *Coix lacrymifera*, and you will find a drawing and description of it in the "Botanical Magazine," t. 2479. You must treat it like a tender annual, but may plant it out in a warm sheltered border in June.

PLUM GRAFTING (*T. C.*).—Early in March is the best time, or at such time as the swelling of the buds shows that the sap is in motion. The modes are precisely the same as for the Apple or Pear. Why not propagate by budding, which may be done in July and August? Your question about bees is answered in a communication from "A DEVONSHIRE BEE-KEEPER."

FLOWER GARDEN PLAN (*J. C. C. J.*).—You have made a very good disposition of the plants in all the parts of your flower garden, which is a lady's fan, with a run of the late Duchess of Bedford's Chain on each side of it, and an excellent adaptation of double ring-beds over the top of the fan for Humeas—a nice fancy pattern. The edging to 7 is superfluous, and unless there was room for a broad band of it—say 9 inches or 10 inches wide—it would not be in character. 3, 3, would be better without an edging, and yellow is out of all character to edge a white bed with. In 5, 5, let Pink Pet, which is a fifth or sixth-rate bedder, be discarded, and let the edging of *Tropaeolum elegans* run all over the bed, and you will never repent it, and watch that *Gazania splendens* does not run over and annihilate your beautiful white edging to it. *Rigens* is the only plant we would ever use to edge *Gazania splendens* with, and both open in the sun, and shut up their flowers in dull weather. We have them now both in bloom together, and the first sight of them paid for all the bother we had to keep them true.

MAKING CONCRETE WALKS (*J. R.*).—No drains are laid under a concrete walk—and to have drains and run any walks, unless in close-glazed pipes, is a wrong idea though still cheap. There is not one thoroughly good garden walk that I know of within fifty miles of London, and they are all too expensive. In large kitchen gardens, where deep drainage is required, the bottom of the walks is the best place to carry the pipes through, but then the pipes will be a yard at the least below the walk, and the damp from the drain will never affect the bed of gravel. The gravel is, therefore, as safe from damp as the joists under the drawing-room floor, as the gravel of all walks ought to be in such a climate as ours. Anybody who has ever assisted bricklayers or masons to put in concrete under foundations can be trusted to make concrete walks, and even be consulted on making them. A solid bottom is all the preparation required before putting in the concrete. I had such abundance of chalk that I often used it one-half, and one-half rough stones and gravel, for a bottom, and in twelve hours it was fit to wheel on. Then I had it slightly watered to receive a last coat of fine gravel for a surface. That coat was of mixed best gravel and finest powdery chalk—say one-third chalk, and the layer half an inch in thickness. But lime is better, and in many places much cheaper.—D. BEATON.

CAMELLIA LEAVES BLOTCHED (*A Cheshire Subscriber*).—These blotches are usually caused by strong sunshine falling on the leaves in a close, confined air. There is no doubt that Camellias which have been somewhat neglected, by having their roots at one time too dry and at another time too wet, are most liable to this disfigurement. The roots by such vicissitudes are deprived of the power of supplying the requisite amount of sap.

STALKS OF VINE LEAVES AND GRAPES DECAYING (*C.—X.*).—They are affected exactly the same as those sent to us by "G. F. D.," and "M. A. M." See what we said in reply to them last week, page 144. That the roots of your Vine are too cold is rendered certain by what you state relative to their being outside, and the soil and subsoil being clayey.

VARIOUS (*A Subscriber*).—For general purposes no Cucumber is better than the Lion House. Store Carrots in sand, having previously cut off a slice of the top of the roots so that they cannot sprout. It is impossible to answer so vague a question as "which is the best Melon?" Do you mean for early or late production, green-fleshed, or red-fleshed? We never recommend tradesmen. *The Cottage Gardeners' Dictionary* may be had free by post for sixty-four postage stamps previously sent.

SCALE INSECT ON COTONEASTER (*Egdon Rectory*).—The Cotonaster is miserably infested with a species of Coccus or Scale, the females of which are now nearly full grown, and will shortly give birth to myriads of young. The only plan which we can suggest at this period of the year is to loosen the branches and rub them along their back sides where the insects occur with a hard nail or toothbrush dipped in a creamy mixture of soft soap, flowers of sulphur, and water.

FLOWER-GARDEN PLAN (*Larix*).—Three very pretty rustic raised basket-like circles, with the top of each filled with Flower of the Day and Verbena André mixed, making the beds look as if planted with some reddish-purple variegated Geraniums. The next step-beds from these tops filled with two rows of Tom Thumb, and edged with Purple King Verbena; and at the bottom a row of *Calceolaria floribunda*, and outside it a row of *Lobelia speciosa*. This idea is good, the manner of planting is better, and a white Verbena where Purple King is, and a variegated something where *Lobelia speciosa* is proposed, would make it one of the best of that style that we have seen. Purple King between light scarlet and shining yellow would only look dull, and dark blue *Lobelia* is, or would be, overwhelmed by a light yellow.

GRUBS IN SOIL (*Grubber*).—Tiy watering with lime water. Thoroughly soak the ground with it. It will not injure the seedlings. A peck of fresh lime to thirty gallons of water is the right proportion.

PEACH LEAVES BLISTERED (*A Subscriber, Ballina*).—We do not know a Peach named the *Scarlet Admirable*. However, whatever Peach it may be, the leaves are blistered. This is a disease the cause of which is obscure, but we believe that it arises from the young wood being imperfectly ripened the previous year. This renders the shoots peculiarly liable to injury from spring frosts and sudden vicissitudes of temperature, which always are liable to injure the foliage. Why the other Peach trees are not similarly injured is inexplicable, unless we knew whether they are planted more shallow, or as less vigorous growers.

PAINTING GLASS TO AFFORD SHADE (*A. D.*).—Take a quart of jelly size, half a pint of water, a dram-glass or half a quart of turpentine, the same of linseed oil, and about as much whiting as a walnut nicely powdered, and put it all in a kettle over the fire until it is near boiling, stirring it well. Then when pretty hot, take it to the glass and draw it thinly and quickly over it with a brush. If you have a dry brush and follow after, dabbing with the point of the brush quickly, it will look neat, like rough ground glass.

HEATING AND ARRANGING A SMALL GREENHOUSE (*Notice*).—We have no faith in the safety of any stove without a chimney. See what a correspondent says about his stove enclosed in a corner of the greenhouse. A small double iron stove—that is, with the fire-box not touching the side, and a flat top for a vessel of water ought to heat your house sufficiently. See what Mr. Robson says to-day about Arnot's stoves. If you prefer hot water, a small brick stove with a boiler like that of Mr. Rivers' on the top of it, or

a boiler like that described by Mr. Al'en, would suit you; but we are convinced the best would be an iron stove, if you did not want much heat, and the small funnel could go through a square of glass in the roof. The house will hold more small plants by having a stage like steps, and individually they will have more room and light, just because your diagonal line is longer than the base. A flat table or shelf would be best for the front. No creeper would look more handsome than *Passiflora coerulea*. You could grow Cucumbers over the roof without fire heat after June, more especially if you obtained a good strong plant from a neighbour, but we would not advise such a proceeding if you value the plants on the stages beneath. A Vine would be every way better, and need no fire at night, when your plants did not need any, whilst it would not be so exposed to insects, nor be so troublesome to manage as the Cucumber. If anxious for Cucumbers, you can, however, manage them in such a place, and if you shut up the house pretty early in the afternoon, you may have splendid fruit hanging down from the end of June to the end of September. You would see much on Cucumbers in late Numbers.

GROWING ACHIMENES AND LILIUM LANCEFOLIUM (J. B. W.).—The Achimenes will begin to come now, it kept dampish, and will do very well in the greenhouse during the summer. As soon as the tubers push a few inches—say two—put them, four or six, in a six-inch pot, using sandy soil and leaf mould, and well-drained pots. Keep them at first in a close shaded part of the house. The *Lilium lancefolium* should be kept nearly dry in winter, after the stems die down; be watered as soon as the bulbs begin to move, and fresh dressed with rich compost. If the pots could be kept on the floor of a cellar, or any other damp place in winter, they would need no watering.

CULTURE OF THE GUAVA AND MUSA CAVENDISHII (Clericus).—The Guava is very accommodating, but of the three places mentioned, the vinery, where the heat does not fall below 40° to 45° in winter, would be the best, though it would fruit well in a Peach-house if the plant was kept warm enough in winter. It delights in rough light loam; and a good-sized plant can be grown in a large pot, or box. If the pot is small for the plant, frequent top-dressings and rich manure waterings should be given in summer. It will stand a little shade, but the more shade in summer and autumn the less fruit next year. In winter it needs little water; but it must not be parched. The *Musa Cavendishii* can be fruited in the smallest space, when a well-rooted sucker is planted in a bed, heated below at pleasure, with hot water, and plenty of light and heat and air are given. We recollect no other mode. Planted in a pot, much the same results would be obtained if the conditions as to light, &c., are supplied.

NAMES OF PLANTS (Wilfred).—1, *Luzula campestris*; 2, *Luzula pilosa*. (J. W. S.).—Of No. 1, your specimen is too imperfect for determination, the solitary flower stem being entirely without ovary. It looks as if it were an Irid, and is, perhaps, some species of *Sisyrinchium*; 2, is *Saxifraga sarmatensis*. (A. Subseriber).—1, *Pachysandra procumbens*; 2, *Oberis sempervirens*; 3, *Piblox subulata*; 4, *Ambretia purpurea*; 5, *Daphne coccineum*.

FLOWER SHOWS FOR 1861.

JUNE 5th and 6th. ROYAL HORTICULTURAL SOCIETY. (Plants and Fruit.) *Garden Superintendent*, G. Eyles.

JUNE 5th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.

JUNE 11th. ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY. (Plants and Flowers.) Sec., W. R. Hobbs.

JUNE 12th and 13th. YORK. Sec., J. Wilson.

JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. Sec., E. Carpenter.

JUNE 25th. ROMFORD. (Plants, Flowers, and Fruit.) Sec., Mr. Alfred Cooper, Romford.

JULY 3rd. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.

JULY 6th. CRYSTAL PALACE. (Rose Show.) Sec., W. Houghton.

JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) *Garden Superintendent*, G. Eyles.

JULY 18th. TOWCESTER FLORAL AND HORTICULTURAL SOCIETY. Sec., T. B. Rodhouse, Towcester.

JULY 18th. PRESCOT. Sec., J. Beesley.

AUGUST 9th. BELFAST. ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Carruthers.

AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, AND HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

JUNE 4th, 5th, and 6th. BATH AND WEST OF ENGLAND. *Steward*, S. Pitman, Esq. Entries close May 4th.

JUNE 19th. THORNE. Sec., Mr. Joseph Richardson. Entries close June 12th.

JUNE 19th, 20th, and 21st. COALBROOKDALE. Secs., J. B. Cune, and Henry Boycroft, Coalbrookdale.

JUNE 25th. ESSEX. Sec., W. R. Eason, Slough House, Halstead, Essex.

JUNE 28th. DRIFFIELD. Sec., Mr. R. Davison. Entries close June 22nd.

JUNE 28th and 29th. TAUNTON. Sec., Mr. Charles Ballance. Entries close June 14th.

JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. Sec., Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.

JULY 18th. PRESCOT. Sec., J. Beesley.

AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. Sec., W. Houghton.

SEPTEMBER 3rd. POCKLINGTON (Yorkshire). Sec., Mr. Thomas Graat. Entries close August 26th.

SEPTEMBER 24th. BRIDGNORTH. Sec., R. Taylor, Bridgnorth.

DECEMBER 2nd, 3rd, 4th, and 5th. BRAMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.

DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., W. Houghton.

N.B.—Secretaries will oblige us by sending early copies of their lists.

MANAGEMENT OF EARLY CHICKENS.

EASTERLY winds cutting round corners, penetrating the best flannels, insinuating themselves into the most skilfully-contrived wraps, suggesting as the first morning duty an inspection of the registering thermometer, and a shudder as the fact was noted that, in the second week in May, 1861, there were 5° of frost, such things have suggested only the causes why poultry was dear and scarce. They have led to some little disquisition; but even that had assumed a character of discontent, and would have become ere long a record of disappointment.

The sunshine has altered all these things; and now—instead of looking at our chickens, and asking ourselves first, whether they were large enough for market; next, whether they would make the tempting prices of which we read—we now wonder whether they will grow enough to be summer winners. We try to recollect instances of unusual, almost incredible, progress, as our man said, "When once they'd started;" and at last we solace ourselves with the most unworthy comfort that we are as well off as our neighbours. If that idea be excusable in any instance it is in this, as it will be against more or less distant neighbours competition will take place.

We advise breeders to do with their chickens as head-masters of public schools are said to do with their scholars—to give all their care to those that will make a return for it, and by their attainments add to the reputation of the school and the renown of the master; while the others, less favoured by Nature, go on the even tenor of their way, consigned to the care of the writing-master. "I am sorry, Sir," says the disappointed parent, "but I do not think my son has made much progress since Christmas." "Indeed! Do you not think he writes a beautiful hand?" Paterfamilias withdraws. But the boy, the master is never tired of showing him off—scholarships, honours at College, and future pinnacles of greatness, all seem "looming in the future" for him.

The same thing is true of chickens: there are two distinct sets. The first will make you, in all probability, a brilliant return for any extra pains you may take—the best run, the best food, and the best attendance will be well bestowed, and pieces of plate or money prizes may be looked for through them; but hand over class 2 to the writing-master, let them go to market, or let them share with large asparagus, or early peas, the honour of dining some particular friend, or a warm maiden aunt, or a rich bachelor uncle—they will never make you a return in any other way. But it will be said, All the chickens cannot take prizes. Granted; but they can all sell.

It will, of course, be necessary to make provision for more than one exhibition; but even for one, that will be held in June, July, or August, it will be necessary to have several sets for selection, or to guard against accidents. The man who boasts he always hits the train to a society is sure to be too late on some very important occasion; and the man who attempts to show largely with a small stock will be sure to be disappointed when it will vex him most. If one out of three carefully-selected fowls should die, or go amiss, it will always happen the day of, or the day before, their departure for the great Show they were reserved for. Keep, then, a plentiful stock, it will enable you to choose easily; and, above all, if it is your intention to show in classes where feather is essential, be careful to choose birds that match. There are two reasons why the first weeding of the yard should take place now—the first is, that the refuse will make more money than they would if they were kept some weeks or months longer; and next, that by removing these there is more scope for the picked birds. We will treat of these next week.

PIGEONS' NESTS.—I have noticed a paragraph going the round of the papers, and which recently appeared in these columns, respecting the Sheffield Pigeons using horseshoe nails in forming their nests where straw was to be obtained. I do not see anything very remarkable in the fact, as Pigeons always prefer sticks and twigs to hay or straw for nest-building when they are readily procurable. I had a pair of Turtle Doves that picked

up in the garden the fine wires that had been used for labelling the dahlias, and lined their nest with them. I have also had Pigeons form their nest of hedge-clippings so full of thorns that the eggs would be sure to be broken or the young spiked.—
B. P. BRENT.

BEVERLEY AND EAST RIDING OF YORKSHIRE POULTRY EXHIBITION.

THIS Exhibition took place on the 22nd inst., and the following day. There were poultry amateurs who pre-supposed the entries this year would be somewhat limited, from the fact of its being held simultaneously with other meetings of like character. We are enabled unequivocally to state, however, that the collection of the present year even surpassed those that preceded it, proving beyond cavil that the interest publicly felt in the breeding and exhibition of choice poultry is not in any way decreased. Beverley, no doubt, possesses various attractions that conduce to the visits of sight-seers, independently of its annual Poultry Shows; but certain it is that numbers of individuals attending it from year to year, make choice of that particular season, that they may enjoy the privilege of viewing one of the most elaborately built minsters in the kingdom, combined with some of the most rural walks conceivable in the immediate outskirts, together with a stroll through as clean and well-ordered a town as we meet with in a lifetime, and that at one expense only. From these causes the amount of admission-money is considerable; whilst the gentlemen composing the Committee are equally notorious for their good management of the specimens confided to their care and courteous conduct to all comers. With such advantages it is not to be wondered at that the Beverley Show is always a good one.

As customary, *Spanish* headed the prize list; and although Mr. Fowler, of Aylesbury, secured the first position, he was very closely pressed by Dr. Pierson, of Bridlington, and Mr. Branford, of Sunderland. The quantity of first-rate *Spanish* hens exhibited was remarkable; but the class for *Single Spanish Cocks* was very indifferent. Mr. Berwick, of Helmsley, was lucky enough to obtain both the first and second prizes in the *Grey Dorking* class, and gain the premium for the best *Single Cock* of this variety, with specimens of the highest merit. It is useless to hope for a better show of *Cochins* than the one at Beverley, and by referring to the prize list it will be seen most of our principal breeders were in competition. As in former years, however, the *Game* classes were the most complete of any throughout the show-rooms; the Black-breasted Reds, Brown Reds, Duck-wings, and Black Game being all of the highest strains in the kingdom, and shown in the most perfect condition and plumage. It is an invidious task to particularise when all the classes were so unexceptionable; but certainly the winners of the two silver medals had to struggle for their success against heavy entries of the very best birds we ever saw together. The *Hamburgs* were both numerous and good. The *Polands*, though limited as to numbers, were also superior. The *Malays*, with the exception of the prize pens, were imperfect. The *Sultan Fowls*, *Brahmas*, and *Silkie*s, in the extra class were unexceptionable. The class "for any Farmyard Cross" drew together (as might be anticipated) one of the most singular medleys we ever met with; among them, however, were some extraordinarily useful fowls. Gold and Silver-laced *Bantams* competed in the same class, and we cannot help alluding, with pleasure, to the excellency of ground colour in the first-prize *Silvers*, the purity of which is always difficult to attain, and has now for some years back been almost extinct. The classes for "pairs of hens" mustered well, and formed one of the most interesting displays in the Exhibition.

The *Turkeys* and *Ducks* were very superior.

It was the general opinion of fanciers, that the *Pigeon* classes were far in advance of the collections brought together by the Beverley Committee on the three preceding occasions, although always considered one of its leading features.

Most unfortunately, the weather at the commencement of the Show was unfavourable; but we are informed that after a few hours there was a decided improvement.

The Judge appointed was Mr. Edward Hewitt, of Eden Cottage, Sparkbrook, near Birmingham.

SPANISH.—First, J. K. Fowler, Aylesbury. Second, T. T. Pierson, M.D., Bridlington Quay. Third, R. S. Branford, Sunderland. Highly Commended, T. T. Pierson, M.D. G. Hoyle, Hessele. Commended, T. T. Pierson, M.D.

DORKINGS.—First and Second, H. W. B. Berwick Helmsley (Grey). Third, W. Dalby, Syston Hall, Grantham. Highly Commended, T. W. Hill, Hey-

wood, Lancashire. G. C. Whitwell, Kendal. W. Watson, Bishop Euton, Commened, F. Key, Beverley. Rev. T. F. Newton, Kirby-in-Cleveland.

COCHIN-CHINA (Buff, Lemon, and Cinnamon).—First, T. Stretch, Dootle Liverpool (Buff). Second, H. W. B. Berwick, Helmsley (Buff). Third, H. Tomlinson, Balsall Heath Road, Birmingham (Buff). Highly Commended, T. H. Barker, Hovingham (Buff). E. Smith, Middleton, Manchester (Buff). J. Cattell, Worcester Street, Birmingham (Buff). J. Mell, Hessele. Commended, W. Dawson, Hopton Mirfield. J. K. Fowler, Aylesbury (Buff). G. S. Simpson, Hunmanby.

COCHIN-CHINA (any other variety).—First, W. Dawson, Hopton Mirfield (White). Second, J. Shorthose, Newcastle (Partridge). Third, T. Stretch, Liverpool (Partridge). Commended, G. C. Peters, Birmingham (White). J. Bell, Thirsk (Partridge).

GAME (Black-breasted and other Reds).—First and Second, H. Adams Beverley. Third, W. Dawson, Selly Oak, Birmingham (Black Red). Highly Commended, H. M. Julian, Beverley. Capt. W. W. Hornby, Knowsley. H. Adams Beverley. Miss A. Stephenson, Beverley (Black Red). W. Raynor, Hunmanby (Black Red). G. Pease, Darlington (Black Red). H. M. Julian, Beverley (Black Red).

GAME (Duck wing and other Greys).—First, G. W. Langdale, Leckonfield. Second, R. Tate, Driffield. Third, H. Adams Beverley. Highly Commended, H. Adams. W. Dawson, Selly Oak.

GAME (any other variety).—First, W. Dawson, Selly Oak (Black). Second, R. Tate, Driffield (Blue). Third, H. Adams Beverley (Pied).

(The Silver Medal for the Pen in Classes 5, 6, 7, to Pen 51, Black-breasted Reds.)

HAMBURGH (Golden-pencilled).—First, W. Shipton, Moseley. Second, W. Grey, 83, Northgate, Darlington. Highly Commended, R. Hemingway, Red House Shelf, near Halifax. J. Robinson, Vale House, Garstang. J. Munn, Heath Hill, Stackstead. Commended, W. B. Key, Epworth. J. Munn.

HAMBURGH (Silver-pencilled).—First and Second, S. Shaw, Halifax. Highly Commended, J. Robinson, Vale House, Garstang. Commended, D. Barker, Hull.

HAMBURGH (Golden-spangled).—First, H. W. E. Berwick, Helmsley. Second, H. Carter, Uppertong, Holmbrith. Highly Commended, H. Adams Beverley. A. Hudson, Ousecliff, York. J. Robinson, Vale House, Garstang.

HAMBURGH (Silver-spangled).—First, J. Robinson, Vale House, Garstang. Second, W. Cannan, Bradford. Highly Commended, J. Dawson, Middleton, Manchester. S. Shaw, Halifax.

POLISH (Black with White Crests).—First, J. Dixon, Bradford. Second, D. Parker, Hull. Highly Commended, J. Dixon. Commended, G. Pease, Darlington.

POLISH (any other variety).—First and Second, J. Dixon, Bradford (Gold and Silver).

MALAYS.—First, C. Ballance, Taunton, Somersetshire. Second, R. Tate, Driffield.

ANY OTHER PURE OR DISTINCT BREED NOT PREVIOUSLY CLASSED.—First, W. Dawson, Hopton (Sultan Fowls). Second, J. K. Fowler, Aylesbury (Brahma Footral). Highly Commended, H. Beldon, Bradford (Silkies). Commended, R. Tate, Driffield (Brahma).

ANY FARMYARD CROSS.—First, Mrs. White, Thearne. Second, R. Robson, Ayrton. Third and Fourth, R. Tate, Driffield.

BANTAMS (Gold or Silver-laced).—First, S. Shaw, Halifax (Silver-laced). Second, T. W. Hill, Heywood (Silver-laced). Highly Commended, T. W. Hill, Heywood (Gold-laced). G. C. Peters, Birmingham (Gold-laced).

BANTAMS (Black or White).—First, J. W. George, Beeston Podge (Black). Second, G. C. Peters, Birmingham (Booted White). Highly Commended, D. Laybourn, jun., North Bar Street, Beverley (White).

BANTAMS (Game).—First, J. Shorthose, Newcastle. Second, R. Smiths, 19, Regent Street, Hull. Highly Commended, C. Ballance, Taunton (Duckwing). Capt. T. Percival, Whitby. Commended, H. Lyons, Beverley (Black Reds).

BEST SPANISH COCK.—Prize, T. T. Pierson, M.D., Bridlington Quay. Highly Commended, R. Tate, Driffield. D. Barker, Hull. Commended, J. K. Fowler, Aylesbury.

BEST DORKING COCK.—Prize, H. W. B. Berwick, Helmsley (Grey). Highly Commended, M. Kirkby, Driffield. Commended, T. H. Barker, Hovingham, Rev. J. F. Newton, Kirby-in-Cleveland (Grey).

BEST COCHIN-CHINA COCK.—Prize, R. Fielding, Middleton, Manchester. Commended, T. Boacher, 106, Bull Street, Birmingham.

BEST GAME COCK (Black-breasted and other Reds).—First, W. Hall, Keldgate, Beverley (Brown Red). Second, H. Adams, Beverley. Highly Commended, H. Adams, Beverley. W. Acklam, Etton Kennels (Black Red). G. West, Etton (Black Red). J. Hodgkinson, Hull (Brown Red). H. Adams, Beverley (Brown Red). R. Hemingway, Shelf, near Halifax (Black Red). Commended, Miss Griffin, Cherry Burton (Brown Red). J. Lowther, Beverley.

BEST GAME COCK (Duckwing and other Greys).—First, H. Adams, Beverley (Duckwing). Second, G. W. Langdale, Leckonfield (Duckwing). Highly Commended, H. Adams, Beverley (Duckwing). Commended, R. Blackburn, Goole (Duckwing). H. Adams, Beverley (Duckwing).

BEST GAME COCK (any other variety).—First, J. Woodhouse, Bampton (Black). Second, R. Tate, Driffield (Blossy-pencilled).

BEST HAMBURGH COCK (Gold or Silver-pencilled).—First, H. Adams, Beverley (Gold). Second, W. Cannan, Bradford (Silver).

BEST HAMBURGH COCK (Gold or Silver-spangled).—First, R. Tate, Driffield (Gold). Second, W. Cannan, Bradford.

BEST COCK (any Farmyard Cross).—First, R. Tate, Driffield. Second, W. Milner, Dunswell.

BEST TWO SPANISH HENS.—Prize, T. T. Pierson, M.D., Bridlington Quay. Highly Commended, R. S. Branford, Sunderland. T. T. Pierson, M.D., D. Barker, Hull.

BEST TWO DORKING HENS.—Prize, J. W. George, Beeston Podge (Coloured). Highly Commended, W. E. Eastern, Hull (Dark Grey). H. W. B. Berwick, Helmsley (Grey).

BEST TWO COCHIN-CHINA HENS.—Prize, J. Cattell, Birmingham. Highly

Commended, H. W. B. Berwick, Helmsley (Buffs). Commended, J. Mell, Hesse.

BEST TWO GAME HENS.—Prize, H. Adams, Beverley. Highly Commended, J. Woodhouse, jun., Bampton (Brown Reds). T. C. Trotter, Sutton, Hull. H. Adams, Beverley. R. Tate, Driffield. J. Pinder, South Duffield (Brown Reds).

BEST GOLD OR SILVER-LACED BANTAM COCK.—Prize, Master J. Crossland, jun., Wakefield (Silver). Commended, S. Shaw, Halifax (Gold).

BEST BLACK OR WHITE BANTAM COCK.—Prize, D. Laybourn, jun., Beverley (White). Highly Commended, Miss Foster, Molescroft, Beverley (White). Commended, E. Smith, Middleton (White).

BEST BANTAM COCK (any other variety).—Prize, W. G. Drewry, Market Place, Beverley (Black Red). Highly Commended, T. Rippon, Beverley (Black Red). J. Turner, Driffield (Black Red). W. W. Boulton, Beverley (Black Red). S. Shaw, Halifax.

BEST GANDER AND GOOSE.—First, R. Tate, Driffield. Second, A. Young, Driffield. Highly Commended, R. Tate.

BEST COCK AND HEN TURKEY.—First, J. Smith, Breeder's Hill, Lincolnshire. Second, R. Tate, Driffield. Highly Commended, R. Tate. R. Stephenson, Hull Bridge.

GUINEA FOWLS.—First, H. Mirkin, Driffield. Second, S. Shaw, Halifax. Commended, R. Tate, Driffield.

DUCKS (Aylesbury).—First, J. K. Fowler, Aylesbury. Second, R. Tate, Driffield.

DUCKS (Rouen or Rhone).—First and Second, T. H. Barker, Hovingham.

DUCKS (any other variety).—First, G. S. Sainsbury, Rowde, Devizes (Black East Indian). Second, J. Dixon, Bradford (Grey Call). Third, Mrs. F. Lawton, Theaine (Cross-bred). Highly Commended, Miss A. Straker, Horsea.

SWEEPSTAKES FOR GAME COCKS.—Silver Medal, Capt. W. W. Hornby, Knowley. Second and Fourth, H. Adams, Beverley. Third, R. Tate, Driffield. Highly Commended, H. M. Julian, Beverley (Red). Capt. W. W. Hornby.

SWEEPSTAKES FOR GAME BANTAM COCKS.—First, R. Hawkeley, Southwell. Second, R. Tate, Driffield. Third, J. Camm, Farnfield.

SPECIAL PRIZE.—A Silver Medal, value £1 1s., given by the Poultry Fanciers of Beverley, for the most perfect Pen of Poultry exhibited, was awarded (Classes 5, 6, and 7 being excluded from competition by the rules of the Society) to Capt. Hornby's Single Game Cock, the winner, also, of the general sweepstakes.

PIGEONS.

CARRIERS (Black).—First, W. Waton, Toll Gavel, Beverley. Second, J. Shorthose, Newcastle. Third, G. Robson, Saville Street, Hull.

CARRIERS (any other variety).—First, G. Robson, Hull (Dunn). Second, Mrs. E. Ellington, Woodmansey (Dunn). Third, H. Yardley, Birmingham. Highly Commended, H. Yardley. Commended, W. Cooper, Beverley (White).

POWTERS OR CROPPERS.—First, A. Cattle, York (Black). Second, S. Shaw, Stainland, near Halifax. Third, T. W. Lowson, Beverley (Red).

ALMOND TUMBLERS.—First, T. W. Lowson, Beverley. Second, T. Conndon, Sunderland. Third, Mr. William Watson, Beverley.

KITE TUMBLERS.—First, J. W. Edge, Ashton New Town. Second, J. Proctor, Keldgate, Beverley. Third, J. Bell, Beverley. Commended, R. Bell, Riding Fields, Beverley.

TUMBLERS (any other variety).—First, W. Statters, Tickton. Second, T. W. Edge, Ashton New Town. Third, Mrs. W. Watson, Beverley (Mottled). Highly Commended, H. Morris, Forest Hill, Kent.

BARS.—First, Mrs. E. Ellington, Woodmansey (Black). Second, D. Barker, Kingston-on-Hull. Third, T. H. Craigie, Woodlands, Chigwell. Commended, H. Yardley, Birmingham.

JACOBINS.—First, Miss L. Turner, St. John Street, Beverley (Yellow). Second, S. Shaw, Halifax. Third, Mrs. E. Ellington, Woodmansey (Yellow). Highly Commended, T. W. Lowson, Beverley. Commended, H. Morris, Forest Hill, Kent.

TRUMPETERS.—First, H. Key, Beverley (White). Second, S. Shaw, Halifax. Third, J. Shorthose, Newcastle. Highly Commended, J. Key, Beverley.

OWLS.—First, H. Morris, Forest Hill, Kent. Second, T. G. Gionton, Beverley Road, Hull. Third, Master H. Key, Beverley. Highly Commended, J. Bell, Beverley.

TURBITS.—First, J. W. Lowson, Beverley. Second, S. Shaw, Halifax. Third, H. Morris, Forest Hill, Kent. Highly Commended, J. W. Lowson, Beverley.

FANTAILS.—First, T. Ellington, Woodmansey. Second, T. Page, Eastgate, Beverley. Third, T. Rippon, Beverley (White). Highly Commended, Miss A. Key, Beverley. T. Rippon, Beverley (White). R. Lowson, Beverley. J. Y. Watson, Toll-gavel, Beverley (White).

ANY OTHER VARIETY.—First, Miss L. Turner, St. John's Street, Beverley (Spot). Second, Master T. Key, Beverley (Runts). Third, H. Morris, Forest Hill, Kent. Fourth, S. Shaw, Halifax.

SPECIAL PRIZE.—A Silver Medal, value £1 1s., given by the Pigeon Fanciers of Beverley, for the most perfect pen of Pigeons exhibited, was awarded to pen 475 (Spots), exhibited by Miss L. Turner, St. John's Street, Beverley.

CHESTERFIELD POULTRY EXHIBITION.

MAY 21ST, 22ND, AND 23RD.

It is now four years past since the institution of poultry shows at Chesterfield; and the fact is a most pleasing one, that the Meeting just closed, though inferior in the amount of numbers, was so good in quality that out of about 250 pens it was quite impossible to point out a really bad one.

In the *Spanish* classes were some of the best birds ever exhibited; Mr. Teebay, of Preston, taking both the first and second prizes, and Mr. Fowler, of Aylesbury, the third. The severity

of last winter, the coldness of the past spring, and perchance, too, the inroads of old age, begin to show perceptibly on the constitution of the first-prize cock in Mr. Teebay's pen; but even yet he is one of the most marvellous specimens of Spanish fowls to be met with; and the younger cock in the second-prize pen bids fair to be but slightly inferior after another moult, with careful management, as he will then have attained his prime. In *Grey Dorkings* the Show was excellent; and certainly it was an unusual feat for chickens of this year, so early in the season, to take precedence of matured birds. They well deserved it, as did also a cockerel shown in the class for *Single Dorking Cocks*. It will be noticed they were from the yard of the Rev. T. Baker, of Old Warden, Southill, Beds. They are indisputably the best-grown chickens we have seen this year, and, being entered at a moderate price, will probably change ownership. In *Cochins*, all the great guns of the day were in full play; Messrs. Stretch, Tomlinson, White, and Fowler taking positions in the order named. It would be very difficult to speak too highly of the *Game* classes. As a general rule the Brown Reds were in the highest condition of any, and certainly the "Sweepstake Game Cock" of that colour, belonging to Mr. Burgess, of Salop, will prove himself a troublesome rival on future occasions if kept up to the mark in which he is now exhibited. The *Hamburgs* and *Polands* were capital specimens; but one of the chief features of the Exhibition was the *Game Bantams*. Mr. Harvey Dutton Bayley's Black-breasted Reds were perfection, and with ease gave the go-by to competition. We cannot refrain from noticing the fact that both at Chesterfield and at Beverley Shows, though held simultaneously, the Rev. T. Baker, of Southill, Beds., took the prizes for *Single Dorking Cocks* with "chicks" of 1861—no mean achievement of his poultry-woman, considering they were exhibited against all ages. The *Single Game Cock* belonging to Mr. Gilbert Moss, of Liverpool, drew crowds of admirers; he was deserving the interest he created.

The competition in the *Pigeon* classes was remarkably severe, many of the Carriers were especially perfect.

The poultry was admirably arranged in a single tier, so that not the slightest plea could be made as to disadvantages of position, light, &c.; and the attention paid to the birds left nothing undone to secure them from injury of every kind.

Chesterfield could certainly boast this year of a most incongruous "extra class." In it could be seen a beautiful specimen of a perfectly white Sparrow; the eyes, as is usual in all Albinos, being of a bright red; the legs and feet being perfectly white. Even if at liberty it could not have possessed better plumage, and its whiteness was equal to that of writing-paper. It appears it was taken last spring from a nest in some ivy, containing another white nestling, at that time only partially feathered, and a third grey one. The old birds were of the natural feather of House Sparrows, without any variation of colour about their plumage in either of them. This makes the colour assumed by their offspring still more extraordinary. The Sparrow exhibited had been taught to turn a horizontal wheel with its feet, and caused no little amusement from the untiring dexterity with which it persisted in its endless employment. Although so purely white, it had been fed entirely on crumbs of bread and hempseed; whilst it is usually considered that hempseed tends to produce blackness of feather in all birds kept in confinement. Another oddity was included in this medley lot, and it was laughable to hear visitors inquiring of each other, "What's that?" "What is it?" "Well, I've heard of the Irish declaration of 'sucking pig' being the best of all poultry,' but this puts Paddy in the shade." It was an extremely large Badger, chained to a leather girth round its middle. The grizzly old gentleman lay constantly, according to general Badger-fashion, with his head turned under his body between his fore legs, as much as to say, "I'm brought here by compulsion of others, but even now it's my own fault if I'm looked at." Talking Jackdaws, &c., caused much mirth and hilarity to the Whitsuntide holiday visitors, and filled up as mixed-medley an assemblage as ever wound up the tail-end of a poultry exhibition.

Before concluding the notes of this Show, we cannot do better than mention a universal rule of the Chesterfield Committee that tends very much to its popularity, and would be a great amendment on the general usages at such meetings. Every exhibitor, without exception, receives at the hands of the Committee, not only a free admission ticket, but a catalogue and prize list gratis; the two latter forwarded immediately the premiums are awarded. Each one interested, therefore, gets the earliest intelligence of his eventual position as to success or disappointment.

Few places are so suitable for a poultry show as the Chesterfield Butter and Corn Markets. A flight of steps leads from the one to the other, and from this point a complete bird's-eye view of the whole is obtainable by every sight-seer.

Edward Hewitt, Esq., of Eden Cottage, Sparkbrook, near Birmingham, officiated as Judge.

SPANISH.—First and Second, R. Teebay, Fulwood, near Preston. Third, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, C. Brown, Carver Street, Sheffield. Lord E. Hill, Norwood Park, Southwell, Notts.

DORKINGS.—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, Mrs. W. Arkwright, Spendon House, Derby. Third, Rev. J. G. A. Baker, Old Warden, Southill, Beds. Highly Commended, T. W. Hill, Heywood, near Manchester.

COCHINS.—First, T. Stretch, Marsh Lane, Bootle, near Liverpool. Second, H. Tomlinson, Balsall Heath Road, Birmingham. Third, R. White, Clarke Street, Dronmhall Park, Sheffield. Highly Commended, J. K. Fowler, Prebendal Farm, Aylesbury.

GAME (Black or Brown Reds).—First, W. Jepson, Edensor, Bakewell. Second, G. C. Whitwell, Kendal. Third, S. Marsh, Ridgway, near Chesterfield. Highly Commended, B. Jarvis, Seacote Mill, near Mansfield. J. Jackson, Firbeck, Chesterfield. J. Lingard, Birmingham. G. Boot, Chesterfield. G. Hellewell, Sheffield. Commended, G. Turner, Chest vield.

GAME (Duckwing or any other Greys or Blues).—First, James Newton, Chesterfield. Second, G. Hellewell, Sheffield.

GAME (White or Piles).—First, G. Hellewell, Sheffield. Second, J. Camm, Farnsfield, Southwell. Third, J. Cowley, Barlow, near Chesterfield.

HAMBERGUS (Gold-pencilled).—First, T. Smith, Northwram, Halifax. Second, W. Froggatt, Walsley, Sheffield. Third, R. R. Tulip, Monkwearmouth. Commended, W. Harvey, Sheffield.

HAMBERGUS (Gold-spangled).—First, H. Carter, Holmfirth. Second, H. Bellin, Bradford. Third, T. Burch, Sheffield.

HAMBERGUS (Silver-pencilled).—First, W. Wood, Sheffield. Second, A. Nicholson, Sheffield. Third, H. Beldon, Bradford. Highly Commended, — Marshall, Nottingham.

HAMBERGUS (Silver-spangled).—First, H. Beldon, Bradford. Second, J. Dixon, Bradford. Third, H. Carter, Holmfirth. Highly Commended, R. Teebay, Fulwood, Preston. Commended, J. Camm, Farnsfield. A. Nuttall, Manchester. T. Griffiths, Eckington.

POLANDS.—First and Second, J. Dixon, Bradford. Third, Mrs. Robinson, The Priory, Mansfield.

ANY OTHER VARIETY.—First, R. Teebay, Preston. Second and Third, J. H. Craigie, Esq., Highly Commended, R. White, Sheffield.

BANTAMS (Gold or Silver-laced).—First, T. H. D. Bayley, Ickwell House, Biggleswade. Second, Miss G. Everett, Mowmouth. Highly Commended, E. Yeardley, Sheffield. — Harvey, Sheffield. Commended, E. Yeardley, Sheffield.

BANTAMS (Game).—First, J. Camm, Farnsfield. Second, G. C. Whitwell, Kendal. Third, W. Silvester, Sheffield. Highly Commended, J. Camm, R. Hawksley, Southwell. T. Procter, Settle. W. Silvester, Commended, W. Harvey, Sheffield.

BANTAMS (Any other variety).—First, J. W. George, Beerton Padge, Notts. Second, E. Hutton, Pudsey. Highly Commended, T. H. D. Bayley, Biggleswade.

DUCKS (Any variety).—First, Lord E. Hill, Norwood Park, Southwell. Second, Mrs. Seamons, Aylesbury. Highly Commended, J. W. George, Notts. Commended, S. Lowe, Tipton, Chesterfield.

SINGLE GAME COCK (Black or Brown R.).—First, G. W. Moss, The Beach, Aigburth, Liverpool. Second, T. Burgess, Salop. Third, D. Ashworth, Halifax. Highly Commended, H. Parker, Salop. Commended, T. H. D. Bayley, Biggleswade. J. Parton, Nantwich. W. Rodgers, Suffolk. G. Boot, Chesterfield. J. Proufield, Chesterfield.

SINGLE GAME COCK (Any other colour).—First, J. Kidger, Newbold, Chesterfield. J. Ewing, Tupton, Chesterfield. Third, J. Jackson, Firbeck, Chesterfield. Commended, S. Lowe, Newbold, Chesterfield.

SWEEPSTAKES FOR SINGLE COCKS.

SPANISH COCK.—Prize, Lord E. Hill, Southwell, Notts.

SINGLE DORKING COCK.—First, Rev. J. G. A. Baker, Southill, Beds.

SINGLE COCHIN-CHINA COCK.—First, T. Stretch, Bootle, Liverpool. Highly Commended, J. Stayley, Collingham, Newark. W. Wood, Sheffield.

SINGLE GOLD-PENCILLED HAMBERGUS COCK.—First, T. Procter, Settle.

SINGLE GAME BANTAM COCK.—First, T. H. D. Bayley, Biggleswade. Highly Commended, J. Camm, Farnsfield. R. Hawksley, Southwell. E. Barlow, Sheffield. C. Auckland, Chesterfield. Commended, R. Moon, jun., Liverpool.

SINGLE BANTAM COCK (Gold or Silver-laced).—First, T. H. D. Bayley, Biggleswade. Highly Commended, I. G. Park, Moresby, near Whitehaven.

SINGLE GAME COCK (Any colour).—First, T. Burgess, jun., Salop. Highly Commended, G. W. Moss, Liverpool. W. Rodgers, Suffolk.

PIGEONS.

Carriers.—First, J. Wood, Nottingham. Second, C. Felton, Birmingham. Highly Commended, J. Dakin, Sheffield. **Tumblers.**—First, W. Taylor, Sheffield. Second, J. Smith, Sheffield. Highly Commended, E. A. Hargrove, Birmingham. J. W. Edge, Birmingham. **Short-faced Tumblers.**—First, J. W. Edge, Birmingham. Second, E. A. Hargrove. Commended, E. A. Hargrove. **Jacobins.**—First, R. J. Wood, Nottingham. Second, E. Holland, Grasshill, Chesterfield. **Pouters.**—First, H. Childs, Birmingham. Second, W. Taylor, Sh field. **Fantails.**—First, J. W. Edge, Birmingham. Second, W. Taylor, Sheffield. Highly Commended, — Taylor. **Any other Variety.**—First, H. Childs, Birmingham. Second, R. J. Wood, Nottingham. Highly Commended, E. Holland, Grasshill. J. W. Edge, Birmingham. Commended, E. A. Hargrove, Birmingham.

RABBITS.

For length of Ear.—First, E. Brookes, Huddersfield. Second, G. Jones, Birmingham. Highly Commended, Mrs. Rathbone, Hasland. **Best coloured.**—First, W. Hodson, Chesterfield. Second, G. Jones, Birmingham. **For greatest weight.**—First, H. Rodgers, Brampton. Second, H. Simpson, Brampton.

CANARIES, BRITISH BIRDS, &c.

Clear Yellow Belgian.—Prize, H. Taylor, Chesterfield. **Clear Buff Belgian.**—Prize, H. Taylor, Chesterfield. **Variogated Belgian.**—Prize, W. Phillips, Old Basford, Notts. **Golden-Spangled Lizard.**—Prize, H. Taylor, Chesterfield. **Goldfinch Mule.**—Prize, W. Phillips, Old Basford, Notts. **Best Goldfinch.**—Prize, H. Taylor, Chesterfield. **Best Bullfinch.**—Prize, H. Taylor, Chesterfield.

LIGURIAN QUEENS:

DIRECTIONS FOR UNITING TO STOCKS OR SWARMS.

In compliance with the request of several correspondents, I have pleasure in repeating the instructions for placing Ligurian queens at the head of stocks or swarms, with such additional hints and modifications as have been suggested by a more extended experience.

As soon as the small box containing a Ligurian queen and her attendants has been received, steps should be taken for removing the common queen from the stock, or swarm, to which the strangers are to be united.

Where bar-hives are in use the operation is sufficiently easy, but should not be attempted without the protection afforded by a bee-dress and thick pair of woollen gloves. The services of an assistant similarly accoutred will be found very useful, but are not absolutely indispensable.

The middle of a fine day is the best time for the operation, which should be commenced by removing the stock a little either to the right or left of its usual position, which must be occupied by an empty hive, from which the crown-board and comb-bars have been removed. The crown-board of the full hive should then be slightly raised, and a little smoke having been puffed under it, must be shifted on one side sufficiently to expose a single bar, which may be carefully withdrawn after the attachments of the comb have been severed from the back and front of the hive by a bent knife. Both sides of the comb must be rigidly scrutinised, and any clusters of bees gently dispersed with a feather, until it becomes evident that the queen is not present, when it should be placed in the empty hive. The same process must be repeated with each successive comb until the queen is discovered and secured, when the bees may be either allowed to remain in the hive to which they have been transferred, or replaced in their original domicile. Sometimes the queen is not to be found on any of the combs, but may be detected among the stragglers remaining in the hive. In practised hands her discovery may be reckoned on with tolerable certainty during the first removal; but if she succeed in escaping detection, the process must be repeated until she is secured.

Driving is the best method to adopt with common hives or boxes; and the bees, having been expelled from their habitation, may be knocked out on a cloth and searched over until the queen is discovered.

Should the bee-keeper be unable to perform the operation of driving, fumigation may be resorted to, and the queen secured whilst the bees are in a state of insensibility.

It is unnecessary to describe the mode in which either driving or fumigation may be accomplished, as full directions for performing both these operations are to be found in nearly every bee-book.

Presuming the queen to have been removed, and the bees restored to their original hive and position in the apiary, measures must now be taken to introduce the Italian sovereign to her future subjects. The first step will be, carefully to remove the lid of the small box, replacing it with a slip of perforated zinc without permitting the bees to escape. The whole must then be inverted over an opening in the top of the hive containing the queenless stock, where it should remain undisturbed until the next day, when the perforated-zinc divider may be withdrawn, and the union will be complete. The workers that accompany the alien sovereign generally fall victims to the first fury of her future subjects; but if the bees are confined during the night by means of perforated zinc, and the hive conveyed into a warm room in the morning, and there kept until the bees are sufficiently oppressed to fill themselves with honey, a junction may then be effected without loss of life. Caution is, however, necessary not to continue the confinement too long. The small box itself need not be removed till the third day, when the bees will be found to have quitted it.

After the lapse of about thirty days,* young Ligurians may,

* Where bar-hives are used, this period of suspense can be abridged to three days, at the end of which time the result of the operation may be ascertained by an examination of the combs and the interior of the hive as above described.

probably, be discovered taking their first flight, and affording unmistakable evidence of the consummation of a dynastic revolution.—A DEVONSHIRE BEE-KEEPER.

BEE-HIVES AND THEIR APPURTENANCES.

(Concluded from page 129.)

ENTRANCES should always be cut in the hive, not in the board, as has been recommended by some writers. I have tried both, and decidedly prefer the former. It is very unhandy to place your hive temporarily on a small table, or any bit of board, and find you have no outlet for the bees. All boards must have a good level; any fear of damp penetrating the entrance is more imaginary than real. The blocks for contracting the entrance in board are clumsy and apt to go astray. I much prefer the simple mode (*fig. 9*) of sprigging on above the entrance a slip of wood,



Fig. 9.

with a check or rabbit on the inner low edge—a small slide the upper edge run off, sloping to the front, answers nicely; a bit of wood with a corresponding check on outer upper edge, an inch longer than the entrance, divided in the middle, makes a handy door, contractable at pleasure to admit but a single bee at a time, and a good defence to a weak hive against wasps. I prefer a good long doorway, 5 inches by three-eighths of an inch, should be kept fully open during the working season; its length is a great advantage, as every bee-keeper must have noticed the unaccountable blind-like groping of a bee on missing the door, often obliged to rise upon the wing, get into the track and effect a second landing before it be found.

COVERS.—All hives not enjoying the shelter of a bee-house must be protected securely from the weather; even these are much better of being wrapped up with some woollen stuff, for the maturing of late, and the promoting of early brood, till the return of summer heat renders it superfluous. Having expressed lately, in No. 646, the advantages of fresh straw hackles and Taylor's straw cylinder, and the benefits of protection generally, I would only now, in addition, draw attention to an octagon cover for Stewarton-hives—*fig. 4*, which has on my recommendation been adopted by several friends, who report favourably of it. It has certainly a very nice appearance when set up; it is 3 feet high to the eaves, and 18 inches wide inside, formed of inch-wood the top shaped out of the solid. The three back divisions work on hinges in one piece as a door, and are secured with a lock and key. In the central panel in front is a large pane of thick glass (seen in sketch) the corresponding panel behind, has perforated zinc of similar dimensions for ventilation, as well as in the floor-board, all closing with light shutters. In great

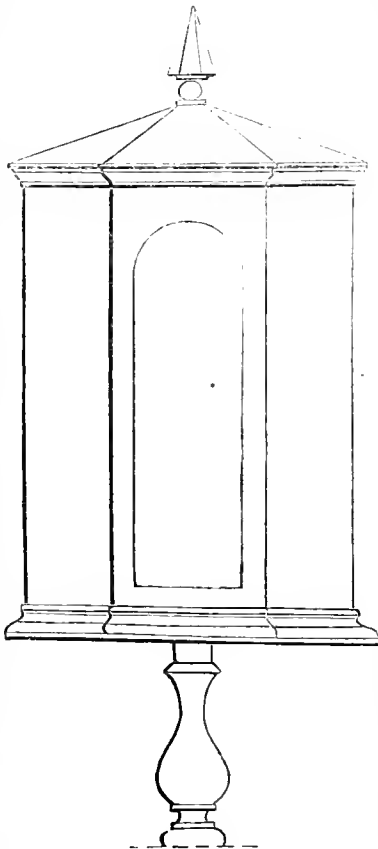


Fig. 4.

heat the door may stand ajar; should a loose bottom be laid above the permanent one, and a strong iron hook fixed above, the hive may be weighed within the cover. The cost is about £1.

COMB SUPPORTS.—I place within all my hives, except those intended for experimental purposes, such as the moveable comb-frames, a support of half-inch wood, fitted from the outside with screws or iron pins and placed about the centre; or in my collateral-hives by upright half-inch end-supports fitted to the ends of the cross ones, and fixed in a notch cut in the outer side of each end-bar, forming as it were a frame, the benefits of which have been already detailed in No. 628, under the signature of "A YOUNG BEE-KEEPER." Any aparian adopting this course will find the advantage of it; and were it more generally adopted, notwithstanding what writers may say to the contrary, you would be less troubled with querists in the truly pitiable fix of having the contents of their hives in a mess on the floor-board.

BEE-HOUSES.—Where a large stock is kept, and particularly should the locality be subjected to depredators, a bee-house is desirable. I once knew a bee-keeper give in on finding his last resort fail. He had for pedestals strong iron pillars, run with lead into heavy stones sunk deep in the ground, his boards bolted securely thereon. A series of chains from the pillars encircled his straw hives, fastening at their meeting at top with a stout padlock. He was robbed as usual, notwithstanding all his precautions; the bees appeared to have been first smoked, and the hives then cut out in portions like the sections of an orange.

A good cool substantial house is useful, a light-wooded flimsy affair decidedly bad for either house or cover; should the bee-keeper not be able to afford the former, he is much better with single pedestals than the latter. All houses must be closed up in front; those open to the sun and closed behind, are not unlike in appearance and supposable effects to placing hives in a bachelor's oven. Wooden houses must be boarded with inch stuff; if to occupy a central position in the garden, they look best if of an octagonal form. A fluted column at each corner both improves their appearance and is useful for preventing the wood "giving" at the corners by fitting the ends into grooves cut in the pillars. Coolness may be promoted by a half-inch lining inside, leaving a half inch or three-quarters of an inch space between the boards, filled up with sawdust, or some other non-conductor. The door, of course, to be in the least noticeable side. The back may be saved by building in front of the garden wall, or part of an outhouse—in that case it had better be of the three-sided form seen in *fig. 1*—the different

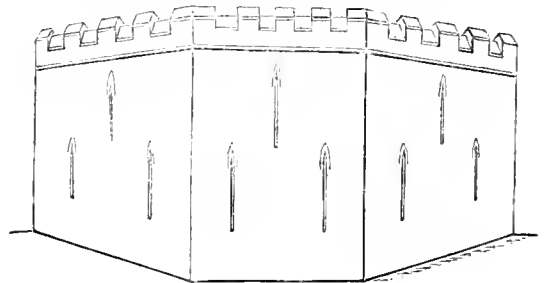


Fig. 1.

exposures keep down a good deal of quarrelling among the bees, than if they entered in a line; it has, besides, less of a stiff wall-like appearance. An upright roof has a detached look on such a building, and is, therefore, better screened behind a castellated parapet (as in the sketch) and sloped a little behind. If placed to a wall the form is better as seen in *fig. 2*. The door at A, if built

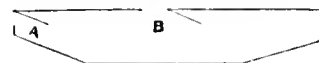


Fig. 2.

with a back, and a passage behind the door, could be placed at B, and the corners omitted, should that be considered preferable. If the ladies of the establishment are haunted with a constant dread of the disfiguring effects of stings, then the house may be placed at the bottom of the break, nearest the wall, the walk in that case passing behind it, where a ready access could be had into it through the door at the back, and the hives inspected without risk. There must be narrow windows at every entrance, sloped inwards at each side, so as to keep the hives as near the external air as possible, on which their prosperity greatly depends. This

window must be of thin stuff, with a shutter, and hinged to work outwards, lighted from above the window, of the form and raised in the manner of a frame-sash. When a hive is to be disturbed it can be raised a little; any bees making their escape fly to the light from the operator, and so gain their liberty. The shelves should be so contrived that each portion below a hive be moveable, for many reasons—such, for instance, as when the sliding door (*fig. 9*) be run in the part, can be raised with the hive, and weighed from the strong iron rod running along the length of the house above the hives; this, and the various details, too numerous to mention, will occur to every bee-keeper for his own convenience. The best house of this shape I have seen was built of brick, plastered inside, with a good flagged or brick floor, delightfully cool, and so clean that there was not shelter for a moth, nor a spider's web to be seen.

EXPOSURE.—The remarks in the "Bee-keeper's Manual" are very sensible on this subject. Apianians favourable to a north aspect, of which I have had a little experience, should satisfy themselves first that the spot selected be thoroughly dry and airy. There a well-found hive enjoys a dormancy till roused by the vernal influences, more in keeping with what is experienced in Russian or Canadian climates, with a doubtless economising of store. I have remarked, and it is a singular coincidence, noteworthy, and certainly favourable to the advocates of such exposure, that although runaway swarms have occupied in our roof different exposures, still within the last few years since I have taken a greater interest in their habits, I have observed they have invariably selected the north; the same predilection has been noticed at the neighbouring seat of an M.P. Some of those old pavilion-roofs in our county exert a mesmeric influence, extending for miles, quite unaccountably, and have become a standing terror to many a cottage bee-keeper; the worthy Baronet's last-named not among the least.

Having already exceeded all due bounds, I have only to plead in extenuation the reluctance one has when mounted on a hobby to tighten the rein; and after a trot in company with one of the cottagers above alluded to, in confirmation of what I have set forth, will then "pull up." On a hot summer day some years ago, as calm and scorching as any expectant bee-keeper could wish, there stood a most enthusiastic member of the fraternity watching his bees; nor was he disappointed, for the longed-for swarm rushed forth

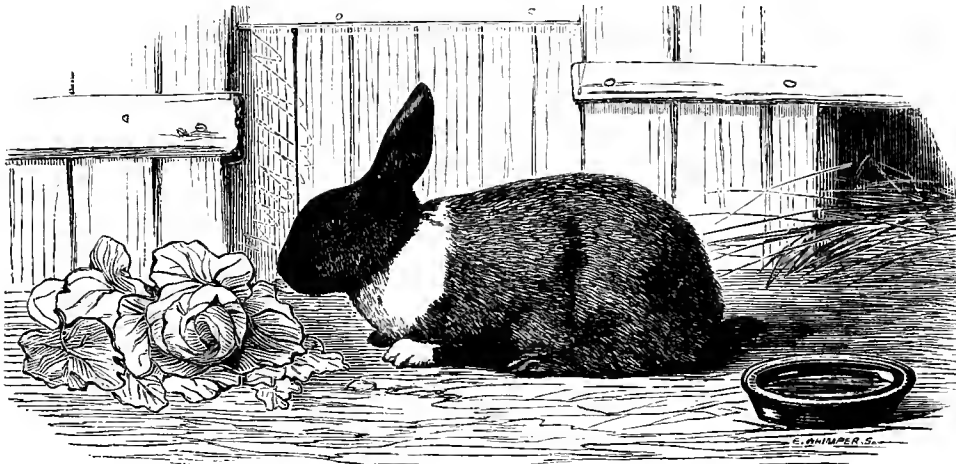
and quietly clustered at the trysting place—a branch bard by; a noble first swarm it was. When about to place his glittering fresh straw hive over his prize (instead of their immediately beginning to descend facilitated with a cloth or a few leaves, our only Scotch method of hiving) the pleased twinkle of his practised eye suddenly changed on observing the black mass heaving, and numbers rise upon the wing, showing unmistakable symptoms of being off; down went the hive. Our friend possessing no small share of the indomitable "not-to-be-done" spirit of the Scot, divested himself at once of his upper habiliments, preparing to give chase. Away went the bees, and away went the bee-master at their heels, little dreaming what lay before him. Suffice it to say, they took him over the country in regular steep-chase fashion. The poor cottager soon saw what he had to expect; but, his blood being up, he would not give in, and followed helter skelter as best he could, through fields, hedges, and ditches, fording several burns and a small river, straining his visual organs all the while to keep the game in sight, till at last he finally tracked them to earth in the aforesaid roof of the then Lord of the Manor. Who should he encounter but the laird himself. At first he could hardly comprehend what the stripped, gasping, perspiring man would be at, pointing to his roof and demanding the use of ladders for the recovery of his property. At length perceiving the state of matters, he settled instantaneously on the spot (what would have been to him a second nature to discuss) the knotty point as to the rights of parties, by paying him handsomely for his bees and complimenting his pluck. They were thus left in undisturbed possession of the spot they had so much coveted.

The distance by the road is fully four miles; but as in the higher parts of our county these are but sorry specimens of engineering genius, being much more noteworthy for the picturesque than the straight, the bees' flight would be considerably less.

On laying down my pen for the present, I would remark, that were your many apianian readers more generally at the trouble of availing themselves of your Journal to communicate their ideas, the bee corner would seldom be vacant, information be diffused, beginners taught, and even our great apianian lights might stoop to gather something from such feeble scintillations, although couched in as limping sentences as those of—**A RENFREWSHIRE BEE-KEEPER.**

THE RABBIT (*LEPUS CUNICULUS*): ITS HISTORY, VARIETIES, AND MANAGEMENT.

(Continued from page 108.)



THE DUTCH RABBIT.

This pretty and useful variety is known in France under the name of *Nicard*. M. Didieux states they are much liked in Old Provence, on account of their prolific and hardy nature, and are very largely bred there.

They are very useful as nurses to bring up the young ones of fancy Rabbits, being such good milkers. It is astonishing to see one of these little creatures bring up five and six young ones in better condition than would be effected by another doe four times her size.

No breeder of fancy Rabbits should be without does of this breed. They are of all varieties of colour, both self and parti-coloured; many of them have a white collar round the neck, as shown in the drawing. The chief point of excellence in these little animals is diminutive size; and I have seen some extraordinarily small specimens, not weighing more than 1½ lb. This small size is obtained by breeding in and in. I cannot see the utility of reducing the size, but such is the freak of fancy.—**R. S. S.**

(To be continued.)

EARLY SWARM OF BEES—RIGHT OF FOLLOWING THEM.

DURING the latter part of last week my bees began to destroy drones, and on Thursday last, the 16th inst, sent out a very strong swarm, which pitched on a currant bush about 50 feet from the hive. This was at 10 A.M., and about one hour after they were safely lodged in a new hive, and well shaded from the sun, but at 1 P.M. they started off, and after some searching I found they had pitched on a wall at the top of a house where inlets had been made for air between the bricks, and where from inquiry I learn that bees have been for twelve years at least. The owner objects to have his premises disturbed, and I am very desirous of knowing if I have any right to claim the swarm, which at this early period of the season and the late destructive winter has made of additional value.—OBITER DICTUM, *Bridport*.

[Blackstone, in his "Commentaries," says, "A swarm which fly from and out of my hive are mine so long as I can keep them in sight, and have power to pursue them; and in these circumstances no one else is entitled to take them." Indeed, if the rightful owner quickly pursues the swarm, and keeps them in sight, and any one else should hive and keep them, it would be a larceny. We believe that if the bees have been quickly followed from the hive whence they swarmed, and have never been lost sight of, their owner is entitled to follow them on to another man's land and hive them. If the man on to whose land the bees strayed took possession of the swarm, or prevented the owner from doing so, we think the owner would have a legal remedy against that man. Of this we are quite sure—no one who is honest will prevent the owner of a strayed swarm following and recovering it.]

THE DOTTRELL.

I SEE by your paper of 14th inst., that you request any information respecting the Dottrell. I know but little of them in a wild state; but a remarkable circumstance occurred within a few miles of Birmingham, that, as relating to this truly singular and beautiful bird, will no doubt afford some considerable interest to a portion of your subscribers. It appears some parties were out at night "drawing for Skylarks," and unexpectedly secured a Dottrell. On being handled, it repeatedly uttered a loud wailing cry, that was immediately responded to by another bird of the same description some twenty yards in advance of the persons netting. Running on rapidly with the net, they secured this likewise, and they proved to be male and female, neither of them being injured at all by the capture. The next morning they were purchased by a general dealer in live birds, named Bates, in the Birmingham Market Hall, who called upon me to know "what they were." He also wished to know "whether I thought it possible to keep them alive and in health." I confess I then had my doubts on the subject. The plan he adopted was, at the onset to feed them entirely on earth-worms, and after some three or four days this diet was exchanged for shreds of raw beef, from which again he gradually "meated them off" on boiled egg, bruised hempseed, and bread, the same as the ordinary cage-food of Nightingales. They prospered well, became even improved in condition, and perfectly tamed, all in the short space of seven or eight weeks. The plumage of no wild bird could be better, being glossy and as close-lying as possible. The appearance of the eye was peculiarly mild and intelligent, and they quartered their cage with that methodical and graceful step so characteristic in all the family of waders. When they saw food preparing they came close to the cage side, and indulged in a low plaintive whistle. They would eat freely from the hand; even from the first they never attempted to fly against the wires or escape observation, but were very observant of all that passed, and occupied much time in preening their feathers. After being kept so long in this very confined space, they were, about two weeks since, sold to a party in London. Their remarkable familiarity, taking so freely to food so unnatural, together with their being captured so early in the season as the first week in March, has caused me to jot down these few particulars, as fancying some other individual might enjoy keeping so unusual a pair of pets, if chance threw them in his way.—EDWARD HEWITT, *Sparkbrook, near Birmingham*.

those birds. I have noticed this year—Swallow, April 5th; Chiff Chaff, April 17th; Cuckoo and White Throat, April 22nd; Nightingale, April 23rd; Swift, May 13th; Turtle Dove, May 14th.—B. P. BRENT, *Dallington, Sussex*.

DO CROSS-BRED RABBITS TEND TO A GREY COLOUR?

WILL "R. S. S.," who has had such great experience with Rabbits, or any other person, have the kindness to state whether, when Rabbits of any kind, which generally breed true to colour, are crossed with some other coloured kind, the offspring show any tendency to revert to the grey colour of the common English Rabbit? There seems to me sufficient evidence that when two differently-coloured and true breeds are crossed that there is often a tendency to revert to the colour of the wild aboriginal parent. I have seen striking instances of the rule with crossed Pigeons and poultry.—CHARLES DARWIN, *Down, Bromley, Kent*.

[We shall be obliged by replies to this query from any one experienced in Rabbit-breeding.—EDS.]

VARIETIES.

CREASOTE, or KREASOTE, is an artificial organic substance, generally obtained from the products of the destructive distillation of wood. It is procured incidentally as one of the constituents of wood-tar, from which it is separated by a tedious process. The principal supplies are obtained from Stockholm, Archange, and America. In the pure condition, creasote is a colourless oily liquid, with high refractive powers; but the commercial specimens are generally coloured yellow or light brown. It boils at 398° Fahr.; does not really inflame; but when set fire to, burns with a smoky flame. It has a hot burning taste, and is very poisonous to plants and animals. It has a great power of coagulating albumen, and hence may be employed with advantage in toothache; a drop placed on the exposed nerve coagulates the albuminous tissue, and destroys its vitality and sense of pain. The most important property possessed by creasote, however, is its antiseptic or preserving power over vegetable and animal organs and structures. Thus, ordinary meat treated with only one-hundredth of its weight of creasote, and exposed to the air, does not putrify, but becomes hard and dry, and assumes the taste and odour of smoked meat. Again, timber treated with creasote does not suffer from dry rot or other disease; and thus creasote, in a crude form, is employed in the preservation of wood. The crude pyroligneous acid of commerce, which is often employed in the curing of hams, &c., owes part, at least, of its preserving powers to the presence of a trace of creasote, which leaves its characteristic odour so well known as obtained from the burning of wood for the smoking of hams, &c. When used medicinally, creasote acts externally by destroying the cuticle; internally, in small doses of a drop or two, it is serviceable in arresting obstinate vomiting; whilst in large doses it produces nausea and severe vomiting; and, in many cases, fatal results.—(*Chambers' Encyclopaedia*.)

OUR LETTER BOX.

WORK ON PIGEONS (*J. Wilmore*).—"The Pigeon Book," by Mr. Brent. You may have it free by post from our office if you enclose twenty penny postage stamps with your direction.

TURKEY DYING RAPIDLY (*G. Ray*).—"The skin which encircles the heart being coated with a white substance like chalk," tells the cause of death. That encircling skin is called the pericardium, and the bird died of inflammation of that skin. Nothing would have saved the bird. Such disease is often occasioned by exposure to damp and cold. Nothing is more likely to produce it in Turkeys than their roosting at night in a cold, damp house.

CANARY CONTINUALLY MOULTING.—A Subscriber and Constant Reader asks why a yellow cock Canary is always moulting. Such a proceeding I regard as an effort of nature to get rid of an over-abundance of nutriment from the bird being too well fed. Discontinue the saffron, linsed and eggs, as well as tape or hempseed and all such stimulating food. Feed on good canary seed and plenty of chickweed and groundsel, with an occasional small piece of bread, apple, boiled carrot, brocoli, or potato, and allow the bird frequent use of the bath. Sometimes hanging in a room where gas is burnt will cause the birds to be continually dropping their feathers. Avoid draughts and excessive heat or cold, but the air cannot be too fresh.—B. P. B.

INCUBATION OF CANARY (*The Public's Man*).—"The period of incubation in Canaries is thirteen days, and I am not aware of any instance of deviation. The eggs that have been sat on for eighteen days must be bad, either from the defective incubation of the hen or from want of vigour in the cock. When the eggs have been sat on for a few days, it may readily be seen if they are good by holding them in the sun's rays, when they appear thick. If they look clear they are bad.—B. P. B.

ARRIVAL OF MIGRATORY BIRDS.—In reply to "H. R.'s" inquiry, I send you an account of the time I first saw or heard

WEEKLY CALENDAR.

Day of M th	Day of Week.	JUNE 4-10, 1861.	WEATHER NEAR LONDON IN 1860.				Sun		Moon	Moon's Age.	Clock after Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Rises.	Sets.	Rises and Sets			
				deg. deg.			m. h.	m. h.	m. h.		m. s.	
4	Tu	Larkspurs and Lupines.	29.703-29.629	63-43	S.W.	.07	48 af 3	8 af 8	19 1	26	2 1	155
5	W	Rhexia.	29.804-29.740	61-38	S.W.	.32	47 3	9 8	39 1	27	1 50	156
6	Th	Paeonies.	29.767-29.730	64-46	W.	.08	47 3	10 8	4 2	28	1 40	157
7	F	Melissa grandiflora.	29.765-29.740	60-40	S.W.	.12	46 3	11 8	36 2	29	1 29	158
8	S	Mignonette.	29.832-29.786	63-46	S.W.	.09	46 3	12 8	sets	●	1 17	159
9	Sun	2 SUNDAY AFTER TRINITY.	29.748-29.493	56-45	E.	.26	46 3	12 8	19 a 9	1	1 6	160
10	M	Roses (moss).	29.731-29.63	64-36	W.	.04	45 3	13 8	56 9	2	0 54	161

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 70° and 47° respectively. The greatest heat, 90°, occurred on the 7th in 1846; and the lowest cold, 33°, on the 5th in 1856. During the period 137 days were fine, and on 101 rain fell.

GLASS FOR HORTICULTURAL STRUCTURES.



HORTICULTURISTS maintain a great difference of opinion on the article "glass" best adapted to garden purposes. A few years ago party opinion vented itself very strongly in favour of, or in condemnation of, the kinds then in use, or were introduced at that time; and although the glass controversy has subsided, there is a considerable difference of opinion still, respecting the best kinds of glass for general

horticultural purposes.

The impulse given to hothouse building by the legislature in abolishing the duty on glass, led to many errors in its first operations—glass of an inferior description finding its way into the market, was eagerly bought up, and its defects discovered; an angry dispute arose about its qualification, and a hasty condemnation of the variety of glass used was the result. The matter seems simple enough now.

Immediately on the repeal of the glass duty and excise, the sudden demand for good plain glass for window and horticultural purposes was greater than the home manufacturers could supply, and to add to this difficulty some strikes amongst their own workmen limited the quantity made and kept up the price. The result of this was an extensive importation of Belgian glass of very inferior quality, which was offered at such low prices as to tempt many to erect glass houses who otherwise would not have done so; but the evil of this low-priced article manifesting itself in the burning, scorching, and disfiguring of plants, a great outcry was raised against sheet glass; and an enterprising manufacturer at Sunderland introduced a description of rough plate glass, which certainly was a great improvement on the wavy, lens-like, Belgian glass. But whether this rough plate was better than good British sheet glass is a question on which some difference of opinion still exists.

It is certain the majority of glass structures are glazed with sheet glass; so that, unless there be some benefit attached to rough plate unknown to the general public, there is every reason to infer that the other kind is most adapted to the general wants of the mass of exotic horticulturists.

The qualities needed in glass used for horticultural purposes may be simply described as allowing of the sun's rays passing through it, as little altered as possible in their character, more especially in their direction. I believe I am right in saying that the very best kind of glass made alters the sun's heating powers in one way or other and the most common kinds, presenting a wavy surface, necessarily act as so many imperfect lenses, diverting the sun's rays all to one point or line, to the

injury or destruction of the plant against which they are directed. Very common sheet glass has this defect, as well as being more or less interspersed with specks or scratches formed in the making. All these ought to be guarded against, and plenty of sheet glass is free from it so far as to be suitable for cultural purposes.

It was with a view to neutralise all effects from the collection of the sun's rays under glass, that the rough plate variety was introduced. This presenting a finely corded surface to that luminary, diverts its rays from a direct line, which it would have in an ordinary way when under good glass, to a diagonal direction right and left of every cord or ridge on its surface, which is something like one hundred to the inch. I believe it does this, and the glass being strong, it can be used in large squares available to the fashionable glazing of the day.

To these good qualities of rough plate has been added by some that no shading is required beneath it for plants that are in bloom, or for cuttings striking; but this assertion cannot be borne out, for many who have been induced to have it on this belief insist that it is really hotter beneath it than under clear sheet glass. Be this as it may, it is only fair to say that rough plate glass possesses no merit which may not be had in sheet glass, and is deficient in some of the points of great importance in plant-house building. Foremost amongst these being appearance, which is certainly on the side of sheet glass; the other looking so rough, obscure, and dirty, while good sheet glass has a nearer approach to polished plate.

As all sheet glass is not alike, it is better to say a few words to guide the inexperienced in the selection of the kind best suited to his wants, the qualification "cheapness," being also included, though not, perhaps, in the same sense it is often present to him, for many low-priced articles are very dear, and glass structures are sometimes of that kind.

Assuming the purpose for which glass is to be used to be a house or structure, either for plant-growing or fruit-forcing, or any modification of either, or both combined, I would certainly give the preference to sheet glass; but I would not by any means advise purchasing a cheap common kind. On the contrary, I advise nothing thinner than what is called 26 ozs. to the foot. Sheet glass to be used for fixed lights; and if the squares be very large I would have it still stronger. It is a great mistake to glaze with thin, poor glass, for the expense of glazing, painting, and woodwork, is all the same, whether the glass be thick or not, and in an *£. s. d.* point of view, glass generally costs less than either of these items, and for a period of ten years thick glass will be the cheapest. I, therefore, have no hesitation in advising the use of good thick sheet glass in all cases where a permanent structure is concerned. In doing this I by no means undervalue rough plate, but as I regard sheet glass of the same price so much better, I cannot but give the preference to that kind.

We have several kinds of sheet glass in use here from 16 ozs. up to 26 ozs. The last, however, being the best, and much less breakage with it; and as that is an impor-

tant item in expense, as well as an annoyance, its avoidance ought not to be lost sight of in ordinary glass for such purposes.

It is needless entering into any other feature of sheet glass than its thickness, as the price generally determines all the rest. Suffice to say, that the amateur ought not to grumble at giving 6*d.* per foot for his glass; and by doing this he will save much during the next ten years, keeping other points in view at the same time which will be explained hereafter.

It is hardly necessary to allude to any other description of glass than those above, as the old-fashioned crown glass is fast falling into disuse, and few, if any, new structures are glazed with it; old ones, however, being repaired as before, and the still older-fashioned under-duty glass is still faster disappearing, with no chance, or, I dare say, no wish for its resuscitation. There is another kind of glass which I think might be advantageously introduced—that is, slightly coloured glass. I never had much experience with this but once. I had a small plant-house glazed with sheet glass tinted green rather strongly, and plants did remarkably well in it and kept a long time in flower. No shading being wanted I did not experience any inconvenience from it in the winter season, and the appearance of things inside of it had a pleasing effect. Hereafter we may possibly have show-houses for plants coloured in this way, rather than resort to the unsightly appendage of shading; and I for one would be glad to see some of them so, not glazed with gay colours, but some sober tint calculated to soften the sun's rays falling on flowering plants, and hastening them on to accomplish the purposes they are by Nature destined to fulfil—that is, to flourish, flower, and perfect their seed. In ornamental plant culture the object is to delay the blooming period; and if this can be accomplished by a neat-looking glass roof without the aid of shading, so much the better. But I have said enough on the subject of glass, and will at a future time give a few remarks on hothouse-building in general.—J. ROBSON.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 153.)

CHAPTER ON SHAPES.

I BELIEVE I did intend that this chapter should be about flowers themselves, and how to mount and wire them, and put them all together, but I begin to think it would be wrong to adhere to that plan.

All that is very nice to know, and very useful, but yet not so utterly essential as the making of forms and shapes; and as I should be very sorry if the little designs should not prove useful, I think it is better to begin at the right end though it is the dullest of all dull subjects, and to write at once of how to manage shapes.

When shapes are provided, patterns are worked out easily, and I fear it is nearly impossible to form them, at least in variety, till these shapes are seen to.

They can be made in a variety of ways. Some have frames of very fine green wire, like the old-fashioned little violet-baskets, only smaller meshed, so that a single stick, or a stem stripped of all its leaves, passes through each hole, all being bound together underneath the frame.

This is one of the easiest plans of all, the holes being, of course, arranged in circles, and the flowers being carefully kept to a very even surface; the effect is then extremely good, and particularly lasting—at least, for wearing. As commonly arranged it has only this disadvantage, that when the petals begin to fall, or the flowers to shrivel up, it is no longer ornamental, while more solid masses look less objectionable.

For one or two days' use, however—as for a dinner-

table, or for carrying in the hand, nothing can do better. It is exceedingly light to hold, and looks light also while it is at the same time very firm, and for economy of flowers it is unsurpassed.

I proceed to give the receipt as precisely as in a crochet-book for making this, overcoming, I hope, its usual reproach of bareness. Having fixed the required size of the bouquet, when complete take a slight wire or pierced frame two inches less in diameter than you propose for the extreme edge of the solid bouquet—that is to say, the extreme edge of the last connected row of flowers. There may, of course, be a stray Fern leaf, or even a fringe of Fern leaves, to come beyond the frame; but I do not count these, because they are not solid, and must not therefore, be included in calculating the size.

It is not at all a disadvantage when, as is often the case, the frame, though otherwise nearly flat, rises apparently a little too abruptly in the middle. A large flower is best for that place, and these are always better when they can rest upon the solid foundation. I only mention this now, however, as regarding the frame; we will talk of the flowers later.

The frame is made much more convenient by having a stem, or rather two or four separate wires with a space the size of a penholder between them, just like a parasol handle; and though it must be a very ingenious young lady to make the wire frame, the stems can be affixed without any uncommon stretch of skill. Where young ladies do try making their own frames, my very earnest advice to them is to use silver wire. The quantity wanted is not great, and the ruin of gloves that is caused by other kinds would be likely to be vexatious. Silver is also much more easily bent.

The circumference of the whole is, of course, three times the diameter. So, if the frame is to be six inches, a piece of wire nineteen inches long should be cut; and then, unless the flowers are meant to be used very small indeed, I think I may say the succeeding lengths should be each an inch and a half shorter, till the last makes a circle about the size of a sixpence. This allows for four rows between the centre and the outside edge—six in all. But as it is better to allow an inch at least for a beginner for fastening the ends, the wire should be cut into lengths of nineteen, sixteen, thirteen, ten, seven, and four inches. Each of these pieces should be twisted or neatly hooked together into circles of their respective sizes; and then, the centre one being formed, three wires should be attached to it in the manner of parasol frames—going out towards the edge, and dividing it into three parts as equally as may be. These wires have to be each six inches long; another inch must, therefore, be allowed for twisting.

Laying the concentric rings upon the table in their proper order, the three frame wires are passed in and out till they are firmly hooked upon the outer circle, the others being secured in their places by a knot of netting-silk. It is very easy afterwards by gentle bending to give the desired curve to the upper surface; and two or three long, strong wires, at least eight inches long, being attached to the centre circle, the parasol frame will be found to look quite complete, and it can at any time be enlarged by another ring supported by two extra pieces of the wire frame; or the three already named may be cut each an inch and a half longer than was required, so as to turn up or down as wanted.

It would be better if the wire were cut in the lengths required at the shop where it is bought, as in that case it would be in perfectly straight pieces.

Some fancy repositories sell this sort of wire. It is expensive at a jeweller's, and I have been told by French friends that the French shops where rosaries are made are the best and cheapest for it.

Where the frames are not intended for carrying in the hand, but only for vases or for dishes, the zinc wire can be used, which is very easily bent into shape. Of course, square dishes or ovals can be filled by wire on the same

principle; and in squares it is, perhaps, better to arrange them in a centre-circular bouquet with the corners filled up, because, unless the wire frame is in the form of rings, it is so difficult to prevent the effect from being liney.

The saving of flowers effected by this plan is something marvellous.

In cases where very small flowers are used, a round piece of green or black silk netting laid on outside the frame and fastened over all round the edge answers every purpose; and where wire is really unattainable or not to be managed easily, the frame can be made entirely of such netting on a cane or whalebone frame, this being so far advantageous that it is exceedingly light and also inexpensive.

These directions are very dry and uninteresting I fear; still we must put up the scaffolding before we can accomplish building, and our work hereafter will be made very easy by arranging these things rightly before we attempt to proceed further.

ROSE BOUQUET.

There ought to be now no difficulty in giving the first June bouquet.

I have set my heart, in fact, on Roses; the beautiful white Banksia, and the pink little Rose de Meaux, and then a fringe of Lilies of the Valley and pale Blue Bells, will surely finish off our bouquet in an artistic manner.

A small, stiff, central bunch of green, which one sometimes calls a faggot, is first prepared as usual; three of the pretty pink Roses are carefully sought out and mounted in a spray, the heads being closely arranged together, and then should come a few of the pure white Lilies, with just two or three of their smallest leaves peeping up as well, encircling the Roses; and a wide even circle two or three Roses deep. How prettily it sounds, that measuring by Rose-buds! The edge of the band, keeping very even, succeeds the Lilies.

So far for the first circle. The second, after a frill or edging again of the pretty Lilies, should be a mass of Rose de Meaux. Sweet little Roses indeed they are (and, oh, so charming for a dwarf Rose-hedge). They should be closely set together, level at the top, and even in their adjustment, and wider a little than the row before.

Thirdly comes the border of double width, in which I hardly can tell how to arrange the flowers—all ways are so pretty when the flowers are such as these I speak of. I think I should mix them entirely, white and pink Roses, Lilies, and Blue Bells all being joined in a mingled band. And yet it would look so pretty with first white and then pink,—each row divided with those perfectly lovely Lilies, and the sky-blue Blue Bells also in a wide final edging, and Fern and Lily leaves to finish off the whole.

Roses and Lilies ought to satisfy very fastidious tastes, and the beautiful little early Scotch Roses may often lend their white flowers to take the place of Banksias.—E.

(To be continued.)

SPRING FLOWERS, ANNUALS, AND HERBACEOUS BEDDING PLANTS.

WHO recollects the kind of bird which poor Barnaby Rudge used to pet and prize so much in one of Mr. Dickens' tales? You recollect Barnaby Rudge was a daft body, and the Floral Committee were put in remembrance of his whimsicalities this spring by the exhibition of his namesake plant from the Wellington Road Nursery—*Rudaea macrocephala*, or Rudge with the large head. This plant had a wedding nosegay for a head when we last saw it before us, on a thick flower-stalk, stout as that of a "Good Gracious" polyanthus, with a polyanthus head of orange-like flowers of ivory substance at the ends of all the branches of a Magnolia-glance-looking plant, and of the size of a small gooseberry bush. This seemed to the Floral Committee will be the ultimatum of that kind of Rudge when it comes of age

in the hands of the specimen maker on the one-shift system; therefore, every family, from the Royal Family, who has a store to grow a *Rudaea macrocephala* and a family of daughters to wed out into the world, ought to grow this *Rudaea*—the only plant, perhaps, which produces, in one head of bloom, a perfect wedding nosegay.

Next I will notice a Pansy, the best Pansy in this world for contrast and for making converts to the family. I also will foretell that seven gardeners out of every ten of them all over the country would run after this Pansy, when I say it is the very style and pattern of the two colours in *Torenia asiatica*. Split up a *Torenia* flower in fancy Pansy shape, and you have the *Maggie* Pansy. Stretch your ideas now to the extent of one hundred yards running north and south—let that be the first border line to your ribbon; let it be 10 inches or 12 inches wide, and as thick as it can grow. Let it be in full bloom, and look on it from the south end about 11 A.M. or 1 P.M., and imagine 10,000 magpie flowers looking you full in the face, and full of flourishing impulse from the full depth of a fully pulverised border of good, light, rich compost, mulched over in March or April with cocoa-nut-fibre sawdust in which Pansies take more than delight to breed and multiply of their own accord, as I can tell from the experience with the yellow Pansy I had from Mr. Sims, of Foot's Cray, seven years back. 1859 was just warm enough for it, and 1860 just wet enough and no more for it. All the frosts since 1853 were but enough to keep it from growing the year round, and when the gales knock it against itself and other things the fragments root as seedlings, and cover the borders with ready-made plants; and all this from the cocoa nut pulp, as the natives call it. This magpie flower is the best of them for ribbon lines because it blooms on and on for months and months, like that yellow one, and like the blue *Trentham* one, of which I heard a great deal, but never saw it, but should judge from what I heard of it that the magpie would be the first row, the yellow next, and the *Trentham* blue the third row of spring running ribbons; then a row of the whitest kind, to cut the three distinct contrasts in front from a full collection of kinds, mixed after your own fancy, behind the white row. But for all that is good in flowers do not make a mixture of kinds in connection with any system which attempts a contrast of colours in running lines without the bar of a white between them, and nothing short of white will do to cut the two systems from forming the groundwork of a fancy puzzle.

The newest idea of a flower-bed is this, and it is carried out to the letter: A fancy-shaped bed, which Euclid could not compass, is lined all round the edge with young plants of Baron Hugel (not Baron de Hugel), and the rest of the beds—which in no part is a yard from the Baron—is planted with Purple Orach. The Orach plants were from 6 inches to 9 inches long, and were laid nearly flat on their sides at planting out of pots. But that is not what brought up the purple Orach after the Pansy, but another fancy which struck me at the time, and which might escape my memory at the proper moment without thus booking it. I have been calculating 800 miles of variegated edgings in the flower gardens of England alone; but if it be three times more, I want next year between the middle and end of March to have as many miles of Purple Orach plants pricked out just beyond the variegated line or lines; and where the variegated is to be over 4 inches from the sides to have another row of Purple Orach pricked out at 3 inches or 4 inches apart, just like pricking out young cabbage plants from the seed-bed. The sowing to be done just three weeks later than for early spring cabbage plants, which is the simplest way to put it for gardeners. In that case you have two rows of this rich purple standing 6 inches or 8 inches apart, and the space between these rows may be full of Crocuses at the time of pricking out the purple; then, if Mint or Cerasium is to be the edging, let each be from very young cuttings, and be put in in two rows, and let the purples be 6 inches apart; but if the variegated edging is to be of Mangles' Geranium, or any other variegated sort, let the purple lines stand 8 inches apart; and all through April, May, and to the end of June, the Purple Orach is to be in contrast with the white edging, and at the same time give the same effect as so many lines of annuals used to give at Shrubland Park, where every other row all over that large garden was a row of some annual in the planting of 1851, when every bed in the garden was full of gay bloom in the last week in June; which could not have been done there at that period without the annuals. I never see a poor miserable lot of bedding-out plants put out to nurse in the

flower-beds by the end of May without wishing I had never encouraged the bedding system, or said more pointedly the benefit that might be derived from the true use of annuals—that is, to use them by the ten thousand in aid of bedding-out plants. I can see no reason under the sun why a flower garden of any extent should have the lapse of one week without flowers from the first coming of the Crocus through the necessary change to pot plants and planting out towards the end of May, but the one substantial reason of expense of seeds, and of looking after the seedlings in bad weather. Instead of despising the annuals I would insist on gardeners learning how to manage annuals properly, and unless they could get full sixty kinds of them in bloom for me by the time the bedders were being put out, to bloom whilst the bedders were getting their teeth, as it were, I would show them how to do them.

Then, if I found the cost to be more than would suit me, I would fall back on a set of our best herbaceous plants, and take a score of kinds of them, or a couple of dozens, and I would begin the spring with *Ranunculus amplexicaulis*, the earliest white bedder help on the list. I said lately that this was grown largely at the Pine Apple Place Nursery, by Mr. Arthur Henderson, on purpose for such work; then the *Arabis alpina*, *alias* *præcox*, and *alias* *alba*, comes in at as early a period and lasts as long, about six weeks. *Alyssum saxatile*, plain, and variegated, and evergreen, follow on in April, and should be had in quantity. *Iberis Tenoreana*, a sweet, early, May-flowering plant. *Iberis corifolia* the same. The *Delphiniums*, as *formosum*, *Hendersoni*, *magnificum* and *pulehellum*, or any others near them, are handsome and most useful helps. The new *Dianthus*es, and Capt. Trevor Clarke's mule Pinks, single and double, are most useful, showy, and easily transplanted at any period of their growth. *Oenothera prostrata* and *serotina*, as well as *taraxifolia* and *macrocarpa*, are all very lasting, but the last two will not bear to be removed often or during the summer. *Lychnis Haageana*, *Sieboldi*, *Bungeana*, *coronata* and *fulgens*, require only to be kept young, or as biennials, to be most useful and very telling. The old, pretty little *Saponaria ocyroides*, to be kept young, like a mountain pink, is one of the nearest front-edge plants we have. In rich or damp soil, the Forget-me-nots are all useful, such as *Myosotis azurea grandiflora*, *montana* and *palustris*, and *palustris alba*, can be moved from place to place the whole summer. *Platycodon grandiflora* is another, the most showy of all the Campanulas. The little white *Campanula pumila*, if it were divided every April, would bloom for nearly three months from July, and occupy no more than 3 inches or 4 inches along the edge of a bed or border. *Campanula carpatia*, blue and white, treated in the same way, last out the whole of the flowering season. In May no garden should want a bed of *Dodecatheon gigantea*, which would easily remove when the leaves begin to fade, and rest till the turn of the new year. *Phlox verna* is a true bedder for April and early May, and to be kept young for runners or cuttings. *Phlox procumbens* equally good for May; large round patches of it are now only going out of flower at Surbiton; *nivalis* and *subulata* are nearly as good, and the four are suited for the front of beds and borders, just as *Polyanthuses* and *Auriculas* were a month earlier.

To represent the new class of *Phloxes*, none of the old is so good as *Criterion*, which is striped carnation-fashion, and lasts in bloom a long time, rising from 2 feet to 3 feet high, according to the soil it is grown in. *Chelone barbata*, and several kinds of *Pentstemons* and *Potentillas*, make the very best border plants either in masses of one kind, or in single patches. There is no end to the new races of *Phloxes* and *Pæonias*, also the new *Pyrethrums*, as *carneum* and *roseum*, *Duchesse de Brabant* in the shade of *Carmine Nosegay*; *Prince Alfred*, a purple crimson, fine, and fulgidum, a blood red, besides others that I have not yet seen. *Antirrhinums*, again, remove perfectly easily from the seedling state till they are in full bloom, and back again the same season after they are over, so that no room is lost to the great work of the season—a perfect mass of bloom in all parts of the ground.

Then there is no end to hardy variegated plants, and in the spring most of them are as handsome in their variegation as others are for their flowering beauty. Besides, by the man of quiet mood and perennial comfort, none of these need be at all removed save once in two or three years; but such as I have indicated to be kept young need to be looked to about making cuttings of them, or dividing them every year, or once in two years at the farthest. But every gardener in the country could add some more names to this general selection of herbaceous

plants, which last a long time in bloom and are not difficult to manage; and no greater compliment could any one of them pay to the new rank and title of the good old and true COTTAGE GARDENER than to add half a dozen kinds of equal merits with those here indicated, and at the same time to say how they should be done by; for all my own experience goes to prove that bare lists of plants do but puzzle and perplex any mortal as to how to dress them, or keep them, or where to put them, and how to make the most of them. But I made the following up on several occasions I had been at Mr. Salter's, Versailles Nursery, and if I keep it much longer I shall not say what may happen.

I shall begin with the Greek *Valerian*, *Polemonium cornu-leum variegatum*—the very prettiest edging plant in this world, where the light, deep, rich soil enables it to be as it has been with me till I was foolish enough to lose it altogether through sheer greediness in excessive propagation; *Veronica chamaedrye*, which will be in the bedding lists soon, as it had a first-class certificate for a hardy edging plant for the million from the Floral Committee—this will beat the hardy *Alyssum variegatum* or its substitute; many other *Veronicas*, *Vincas*, and *Verbenas* with well-marked variegations; *Sedum acre*, *var.*, and *Sedum telephium* two sorts; *Saxifraga granulata*, a gem for rocks if not disturbed; three and five-lobed *Shamrock* for St. Patrick's patrimony as deep in rubrum as *Orach* is in rubicundum—dark purple bands, in fact; *Symphytum officinale*, a grand thing, with bands as in ribbon grass, but four times broader; *Agrostis vulgaris* and *colorata*, very nice; and *Arundo phragmites* with golden chains; *Calystegia sepium*, *var.*; *Comarum palustre* ditto; *Lily of the Valley* as ribbon grass; *Solomon's Seal*, or *Convallaria*, *Polygonatum*, and *C. Sieboldi* the same, very handsome; *Festuca glauca*, for verges to green drives in plantations, and to carriage-roads where they run through rough underwood in plantations and large shrubberies. Coming from the London lodge, such verges never want cutting or weeding. Many *Funkias*, *Centaureas*, *Irises*, *Gromid Ivies* or *Glechomas*, *Lamiums*, *Rudbeckias*, *Melica* and *Mentha*, *Veronicas* and *Vincas*, *Sedums* and *Salvias*, and indeed to the number of 250 kinds, and every one of them a variegated plant, quite a novel sight of itself. But the gentleman on Brixton Hill who gave me the yellow *Polyanthus*, and who has a regular museum of rare plants, showed me five or six plants of the Golden Variegated *Aucuba japonica*, which few people can do properly, but which he does as regularly as the Flower of the Day, even to the bark of the young wood—all of a glowing golden yellow in immense stripes, spots, and blotches.

D. BEATON.

THE AURICULA BLOOM OF 1861.

THE idea entertained by a grower of these flowers—that frost was good for them, would almost seem to be (however ridiculous it appeared at first sight) correct. Never have we had a more severe winter; never have our noses been so cold or our coal bills so heavy; and yet, from all I see and hear, never was there a finer bloom of these flowers than the present season has witnessed. But we must not, therefore, conclude the above axiom to be true. “The *post hoc* and *propter hoc* are two very different things.” Cold frosty weather implies an absence of damp, and this being the great foe to the Auricula, the season has favoured it; but had the weather been equally dry without frost and snow, the advantage would have been equally great. From one grower indeed, and he one of no mean celebrity—Mr. Lightbody, of Falkirk—I have received a very unfavourable report; but as he has himself, I grieve to say, been an invalid, it is very possible that may have had something to do with his bloom, though he attributes it in great measure to the fact that his trusses were all heart blooms. That, by-the-by, opens out a very curious question, of which I can see no solution on any physiological grounds. How comes it to pass, that if an Auricula throws up a side bloom it is pretty sure to be in character; but that if it be from the heart of the flower—no matter what the edge may be, green, grey, or white—it is just as likely to come in any other class as the one it belongs to? Again: I have had kinds which one year have come all green-edged, the next year all grey. Can Mr. Darwin, Mr. Beaton, or anybody enlighten me on the first of these points? The latter may be the effect of season, but the former occurs in all seasons.

There has not been for many years—not, I should think, since the gatherings at the Horns Tavern, Kennington, when

John Dickson was king of growers—so large a display of Auriculas seen in London as at the April Show at the Royal Botanic Gardens. I was, I regret, unable to attend, but it was a large step towards what I have long desired—a national Auricula show. Mr. Turner sent a large collection; and my friend Mr. Jeans, of Alford, a basket of new varieties, besides his lot for competition; and I understand that many were the admirers who crowded round them during the day. May we not hope that some of those admirers may be turned into growers, and thus the patrons of this beautiful spring flower be increased in number? In the hope that such may be the case, and for the information of those who are growers, I append some notes taken of both old and new flowers this season.

GREEN-EDGED CLASS.

Booth's Freedom.—This most difficult flower to grow, as most people find it, had with me only three pips, which were very fine; but my brother tells me that Dr. Plant, the famous grower at Monkstown, near Dublin, exhibited it with nine or ten, and each pip as large as a florin.

Dickson's Duke of Wellington.—An old flower; a great favourite about London, but no way thought of in Lancashire—too full of colour, and striking on a stage.

Dickson's Duke of Cambridge.—This has not done well with me this year. The ground colour is very bright—a violet purple, but the plant itself is not strong in constitution.

Dickson's Matilda.—Neither did this bloom well with me this season. These caprices are very odd. Last year it was excellent. It has several faults (we florists are very particular, I fear) amongst them that of not throwing up its footstalk sufficiently.

Leigh's Colonel Taylor.—An old, and, I think, over-rated flower. Petal pointed, paste too thin, and stem not strong enough.

Finlayson's John Bright.—In sturdiness and want of refinement well named. A new flower of immensely vigorous habit. Eye not colour enough, but as a stage flower cannot be dispensed with.

Lightbody's Sir John Moore.—At one time I thought this must go to the border; but, with less mauve, it has been a presentable flower, and I shall retain it.

Page's Champion.—One of the oldest and best of its class. A delicate-constituted plant, and very difficult to obtain. I had one early and good bloom of it.

Oliver's Lovely Anne.—An old, easily grown, and useful variety. Sometimes green and sometimes grey in its edge.

Campbell's Lord Palmerston.—A good variety. Somewhat pale in the eye, but very flat. A good dull green.

Smith's Lycurgus.—A lion! Edge green, with a good deep ground colour. The eye yellow. Foliage large and considerably serrated. Vigorous in habit, and sure, I think, to push aside some of its older companions. Florists will see a very admirable portrait of it in the September Number of the "Floral Magazine."

Howard's Lord Nelson.—A good old variety. Faulty in some points, but easily grown.

Clegg's Lady Blucher.—A pretty flower, though somewhat pointed in petal. Ground colour a light purple. Edge apt to get foxy.

Smith's Richard Cobden.—Fine and vigorous growth. Edge a good green. Large amount of ground colour. A noble stage flower; and, as it is so robust, it will find its place into most collections.

Smith's Lord John Russell.—Good lively flower. Clear in the edge, a little too rough, and somewhat thrum-eyed.

GREY-EDGED CLASS.

Chapman's Maria.—A high-priced and exquisite flower. Its colour is of the most intense violet; and there is an air of singular refinement about the flower, which, despite the indecision of its edge, places it in my mind at the top of the tree.

Chapman's Sophia.—Another very beautiful flower, but not equal to its sister.

Cheetham's Lancashire Hero.—Perhaps in form the most perfect of all Auriculas, though wanting in decision of edge. Colour deep, eye good, pip flat, and altogether a model flower.

Fletcher's Ne Plus Ultra.—In size certainly deserves its name. Pips as large as half-a-crown, are not uneven, but then it is coarse. It is, however, a flower that is sure to attract, and I do not find it all weakly in constitution.

Fletcher's Mary Ann.—A neat prudish-looking flower, quite the old maid of Auriculas; but like many of that too-much-despised class, most valuable. (I only wish the old bachelors

were half as unselfish.) A good exhibition flower, though it does not make a large plant.

Lightbody's Richard Headley.—A very late-flowering kind. Foliage peculiarly beautiful; pip not large, but good in shape. So late, as I should think very difficult to get in for an exhibition. My plants are in bloom now (May 28).

Maclean's Unique.—A fine, bold-looking flower. Its eye somewhat large; but I do not know a more striking grey edge than it is.

Waterhouse's Conqueror of Europe.—An old flower that I took prizes with twenty years ago, and still a winning sort. Constant, a good grower, and quick propagator.

Dickson's Lady Jane Grey.—Of this I had a very fine truss. The petal is round, the edge good, the eye orange, habit excellent, and lasts very long in bloom.

Headley's George Lightbody.—Alas! my plant is gone. Mr. Jeans says he had it very fine, although somewhat defective in ground colour.

Rev. George Jeans (Turner).—A very neat flower in the way of Sykes' Complete. Good eye, edge decided grey. Quite new, and not let out yet.

Mr. Feasch (Chapman).—Cannot equal Mr. Chapman's other two flowers; but is very pretty in colour. The pip is large, and the habit of the plant good.

WHITE-EDGED CLASS.

Taylor's Glory.—Still unapproachable as a white edge. The colour beautiful violet, paste thick, edge pure white; truss large; foliage very mealy. I have had some fine blooms this season; but have seen it with Dr. Plant with pips as large as a florin!

Lightbody's Countess of Dunmore.—A good flower. Mealy foliage; ground colour deep chestnut; orange tube. Fine trusser, and good grower.

Hepworth's True Briton.—A good white edge, but has the fault of rarely flattening. Colour dark plum; foliage smooth and green.

Popplewell's Conqueror.—A very old but very useful variety. Edge too much approaching grey, very mealy and serrated foliage; habit good, and an indispensable flower, whether for exhibition-table, or stage.

Smith's Ne Plus Ultra, wrongly named, for Taylor's Glory is a long way beyond it, still the flower is a good one.

Gaines' Model.—Too small even to be fit for an exhibition-table. The pip is circular and flat, and it will be found pretty for the stage.

Traile's White Rival.—Coarse in texture, too much colour. Perhaps another season may modify it.

SELF CLASSES.

To most non-connoisseurs this is the most attractive of the four, the various shades of colour, from the deepest maroon approaching to black, to the liveliest light blue, render it eminently attractive, and of late some valuable additions have been made to it.

Netherwood's Othello.—The earliest-blooming of all Auriculas with me. Colour a deep maroon; tall in growth, and apt when fully blown to throw back its petals; but a desirable flower.

Martin's Mrs. Sturrock.—I had some excellent blooms of this variety. A dullish-crimson flower, very flat, with good paste and eye. A sterling variety.

Lightbody's Meteor Flag.—A large and clear-coloured flower, but I think beaten out of the field by some of the newer ones.

Richmond's North Star.—A very beautiful light lively blue flower, well shaped, paste good, and eye pure yellow.

Faulkner's Hannibal.—A good deal has been said about this flower the last two years. I saw it this year along with Squire Muunday. It certainly is the same, is rough, coarse, vigorous in growth, and striking as a stage flower.

Spaldry's Blackbird.—One of the best selfs. Colour deep purplish-brown, somewhat reflexes when fully open, and throws up its anthers too much, making it thrum-eyed.

Volunteer (Turner).—Petals large, and a circular eye; too light, and paste too thin. The foliage is good, and, doubtless, it will be generally grown.

Spaldry's Metropolitan.—A very pretty flower in the style of North Star, but not equal to it.

Redman's Metropolitan.—A pretty flower, which soon, however, fades its colour, and then looks as if it had been floured. Very small foliage. In winter you would imagine the plant would do nothing, but it throws up a fine truss.

Chapman's Squire Smith.—I have grown this two seasons, and unless it improve I shall not grow it after next year. It is certainly better this year than it was last.

Such are some of my "observations" for this season; and I am more than ever convinced, that plain common sense and an absence of quackery will enable any one to grow this charming spring flower. We poor florists have been so thrust aside by whipper-snappers, like "Tom Thumbs," yellow *Calecolarias*, variegated *Mint*! and every thing that can be pressed into the bedding line, that we must stand up for ourselves, or we shall be overwhelmed. Let not lovers of flowers be afraid of trying their hand, and may success attend them.—D., Deal.

CULTURE OF THE GRAPE VINE.

VINES IN THE OPEN AIR ON WALLS.

(Continued from page 137.)

In my last paper on this subject I described what I consider is the best and simplest mode of pruning and training the Vine on walls. The alternate mode of training and pruning the Vine may be varied to suit circumstances. The same principle is that called horizontal training. A main stem is carried up to the top of the wall, and side shoots at regular intervals are trained at right angles from it (fig. 6).

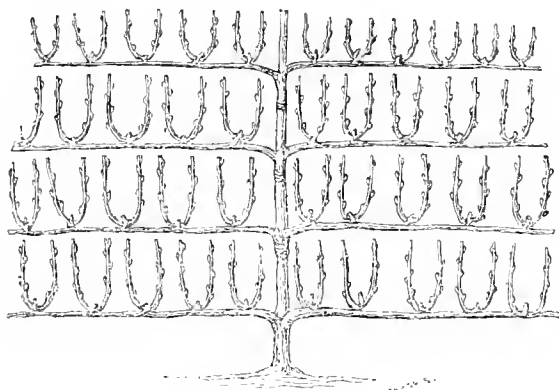


Fig. 6.

This plan answers admirably for Vines trained against the walls of a dwelling-house, and also against a wall purposely set apart for Vines. In the latter case the shoots may be trained and pruned yearly just on my alternating principle—that is, one shoot to bear fruit and another to produce wood alternate with each other.

The next best mode is that called *spur pruning*, which some cultivators perchance would like to try. It is almost as simple as the other. Furnish the wall with upright or horizontal shoots, and prune in annually the laterals (which should not be left too numerous) to a single eye or bud. When these buds break they should be all trained on the upper side of the branch (fig. 7) and not pointing upwards, but rather aslant so as to allow the bunch to hang clear of the stem that bears the fruit.

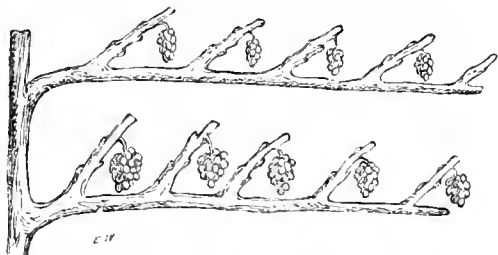


Fig. 7

The summer treatment of Vines on walls consists in stopping the fruit-bearing laterals one joint beyond the bunch, and stopping also the side laterals at the first joint. This stopping must be persevered in all the summer. Each lateral that bears fruit

should be fastened to the wall in its early stage, in order that it may not be broken off by the wind or its own weight. Then, again, never allow more than one bunch to a shoot, and thin them moderately, to allow the berries that are left room to swell. Should the season prove a dry one, then give the border a good watering once a-week, and every third time water with liquid manure of a moderate strength. Syringe the Vines as soon as the fruit is set to keep the leaves clear of dust. Do this in the evening, then the leaves and fruit will get dry before the sun has any power to injure. Cease syringing as soon as the Grapes begin to colour. Of course, in dropping or rainy weather the syringing will be dispensed with. Should mildew appear, directly it is seen dust it with sulphur, which will check the disease if taken in time. When the fruit is all gathered, then cut off all supernumerary laterals and leaves, to allow the sun to reach the wall and heat it, and thereby ripen the wood.

One very important point the cultivator of the Vine must attend to, especially where the spur system of pruning is followed, and that is to carefully preserve the leaf nearest to the bottom of the yearling shoot. That leaf has to mature the bud that is to yield fruit the following season. If it is destroyed either accidentally or otherwise, it is ten to one if the shoot from that bud will produce any fruit the following season: hence that leaf should be carefully and sedulously taken great care of till it falls off maturely ripe.

Fig. 8 represents how a Vine should be pruned on the spur system. In four or five years the spur may become long and unsightly, but at its base there is always a knot of incipient buds, one or more of which, when the Vine is vigorous, will break. Such a bud should be allowed to grow and encouraged to acquire strength by hard stopping the leading shoot on the spur. In the autumn when the Vines are pruned the old spur should be cut off, and the young one made to take its place. By careful attention the whole of the spurs may be renewed and brought, as it is called, nearer home. My friend Mr. J. Meredith, of the Vineyard, Garston, near Liverpool, prunes his Vines still more severely. He cuts off all the spurs annually, and states that he very seldom fails having fruit from the incipient buds; but then his Vines are so extraordinarily luxuriant and fruitful that he can afford to (what I call) take liberties with them.

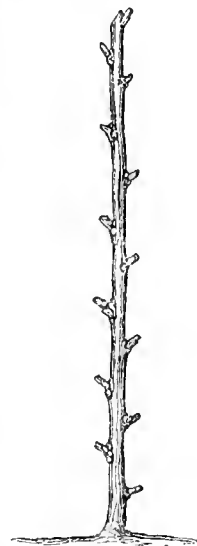


Fig. 8.

In wet, cold summers, however, the wood may possibly not get ripened to the full length of the yearling shoots to the top of the wall, especially in situations considerably north of London. In such a case (or indeed in every case for the Vine) I would advise the wall to be flued and heated either by the old method of common hot air, heated from a fire placed at the north side, or by hot-water pipes carried within the flues in the wall to the top, with returning pipes brought down again to the boiler. The advantages of hot-water pipes are, that the top part of the wall will be equally, or nearly so, as warm as the lowest range, which is not so with walls heated with the smoke or hot air in the ordinary flues. It is true the hot-water pipes are more expensive; and the other method, if well managed, is not greatly inferior, especially if the Kiddean system of heating the air so strongly recommended by my friend Mr. Beaton be adopted. In addition to this helping the Vine to ripen its wood by heating the wall, the ripening of the fruit will be assisted also. In unfavourable summers like that of 1860, if the cultivator has a few spare lights of glass at hand, he might with advantage make use of them by placing them against his Grape wall. Even covering each, or part of the bunches of fruit with bell or small hand-lights, would ripen the fruit better and sooner than if left fully exposed.

In order to facilitate the growth and ripening of both the wood and the fruit, early shelter from late spring frosts and cold winds, the Grape wall should be covered with netting of some kind. Much has been said in favour of tiffany; but though it has merits, yet, from its close texture, it excludes too much light and air. Woollen netting also holds moisture too long,

and contracts and expands according to the state of the weather. I have seen a kind of netting called Brittain's netting, that has the least objectionable points of any in my opinion, and being made of three-fold cotton it is strong and lasting. However, any of these kinds are sufficiently good for the purpose, and used early in the season, will help to bring out the young shoots earlier, and protect them from cold. Remove these shelters towards the end of May, they have done their due. In the autumn, if it should be cold and wet, then replace the shelters, for the double purpose of ripening the fruit and the wood.

The woodcuts also display how the side shoots or laterals should be trained so as to give the bunches clear space to swing, as it were, at their ease. In such an open position the sun will heat the wall in their immediate neighbourhood, and thus conduce to mature and ripen them better than if they were hanging close to the stems in a thicket of leaves.

If the above points of culture are carefully attended to, I have no doubt very fair Grapes in moderately favourable seasons will be brought to perfection even on open walls. And let not the cultivator of the Grape even in the north of England fear to try it on the open wall. I know at least two examples of successful culture in that way as far north as Yorkshire. One is at Temple Newsam, near Leeds, the seat of H. Meyrick Ingram, Esq., under the successful management of his excellent gardener, Mr. Taylor. The other is in the gardens at Swillington Hall, about two miles from Temple Newsam, Sir John Lowther's place, managed by Mr. Broome. Both are fine examples of successful culture of the Vine against walls in the open air. T. APPLEYBY.

(To be continued.)

FORCING.

(Continued from page 98.)

CUCUMBERS.

WHEN once the growing of Cucumbers in dung-beds is mastered, there will be no difficulty in growing them with the assistance of hot water or flues. When I could not grow them early in a Pinc-stove heated by flues, which used to give as many as I wanted in pots and boxes, I was forced to try to get them earlier in pits heated by hot water. These pits were deeply sunk originally, and pigeon-holed in the walls for dung linings; but as my employer neither liked the littery appearance of the dung, nor the idea of letting me have such a quantity of it, I obtained hot water as a substitute. The pits being so deep, a part of the bottom was filled in and rammed; open rubble was placed round the pipes for bottom heat, and these were covered with rough and then fine gravel. The soil was placed above. For early crops, however, nothing could be done without moving the sashes, which led to digging out the path, and building a four-inch wall there, so as to permit attending to the plants in all weathers by a small door in the back wall. Below the pipes for bottom heat, a layer of concrete is placed upon the rammed clay and earth, which sets sufficiently firm to retain a little water about the pipes and rubble when poured through a drain-pipe which is introduced through the soil down to the concrete. The only objection I have to such a pit is the small top room; for, though the space for earth is not 3 feet wide, that is generally earth enough to keep up great luxuriance in the plants. The front pipes for top heat, &c., are just near enough the plants.

What I should much prefer for Cucumbers in a lean-to house, would be a house like *fig. 40*, 8 feet wide and 11 feet high at back. I should have liked it better still 1 foot or 18 inches wider, 1 foot higher, and hipped roof at back of 18 inches or so, where air could be given, and all the front roof fixed. I have shown four pipes, one at front and one at back for top heat, and two below the bed for bottom heat. I would have these pipes on a level, the one at back and front flows, and the two beneath the bed as returns. There is the same concrete below the beds, and gravel on the top of the rubble, and means for pouring water into the rubble when deemed necessary. A strong flue might go through such a bed and return close to the back wall. The flue might go and return beneath the bed; but then there would need be openings in the pathway wall, or tubes through the bed to let the heat up. It will be seen how easy it would be to have either pipes or flue in a chamber, the earth being supported by a floor of slate, or stone, or even of wood alabs, with the interstices between them filled with pieces of brickbats and stones. Many like that system best; but I own I consider clinkers, brickbats, &c., with a fine surface, such as fine gravel, so as to get the earth

clean off, the cheapest, the easiest heated, and altogether the best *Fig. 41*, is a section of a first-rate Cucumber-house, 12 feet wide, inside measure, pathway 3 feet, side walls 3 feet, with moveable

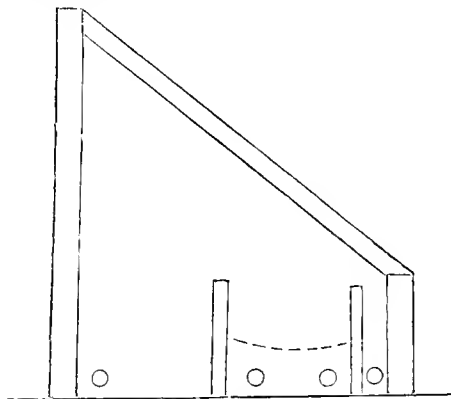


Fig. 40.

glass sashes 2 feet, height to ridge 9 feet, ridge-board double, with wooden ventilators hung between, and a double ridge-board to prevent rain driving in, and yet allow air freely to pass. At

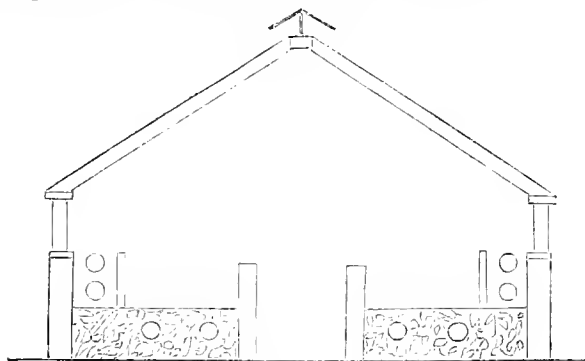


Fig. 41.

Luton Park a house is now building on a similar plan, but at least 3 feet higher, and the cowl itself sets close to the glass, and is elevated in pieces by a lever. The top heat and bottom heat are respectively under control. *Fig. 42*, is a much more

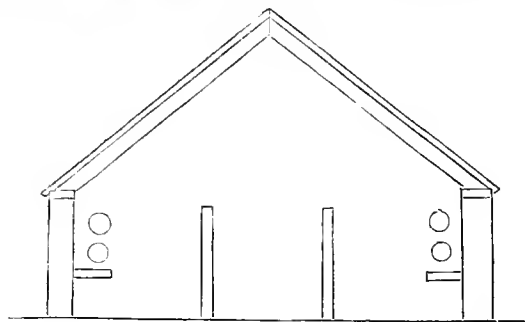


Fig. 42.

economical affair, and is, as far as I recollect, a section of a house used very successfully by Mr. Burton, of Hatfield House, both for Cucumbers and Vines in pots. It is a span-roof with no glass in the side walls, and two pipes on each side for top heat. Warm manure sweet, 2 feet or so in thickness, is placed below the soil to help to warm it at first, and the plants are turned out and answer remarkably well. The house faces north and south or nearly so, and were growing only on the north side at the beginning of May, and were very fine indeed. Even in winter I was assured they do well, as the four pipes keep not only the atmosphere, but the soil warm enough. Our readers may easily see how such a house may be varied as to its heating. For

instance: the heating-pipes might be below the pathway, and a drain-pipe would keep up a circulation in the house, and the two pits might be filled with hot leaves and tan, and plants be grown in large pots, and fresh tan added as needed, or a flue might go under the pathway instead of pipes. In such a house with a strong flue round one end and two sides, without any pits at all, fine Cucumbers could be grown in boxes 18 inches long, 18 inches deep, and 15 inches wide, set upon the top of the flue with just a piece of tile at each corner to keep the bottom of the boxes off the flue. On all spare spaces of the flue we would have evaporating-pans to use when necessary. With a flue half of it nearest the furnace brick on bed, and strong tiles for covering, and the house not more than from 25 feet to 30 feet long, and some 10 feet wide, I should desire no better means, though hot water is much less liable to accidents. In heating the soil taking care it is neither too hot, nor too dry, nor too wet, &c. The same minutiae must be attended to as in dung-beds; but Cucumbers in a house are always more interesting, as the fruit is always so much more handsome when seen suspended from a rod or trellis. There being so many inquiries as to different modes of growing Cucumbers will furnish a place for these remarks.

R. FISH.

EFFECTS OF POTATO STEMS BEING FROSTED.

IN answer to inquiries in your Journal of the 21st ult. Though your correspondent, under the signature of "THE DOCTOR'S BOY," has come to the conclusion that where the shoots have been repeatedly cut down by frost, as almost every one must have found during this spring, the crop at lifting time has not suffered, the difference will, I think, be perceived in the size, but not the number of Potatoes under the stems. This seems only reasonable to expect; for the largest Potatoes are lifted under a single stem, which has escaped frost: whereas, after having been once, or oftener, cut back by frost, it is invariably the case that numerous shoots are sent up, and the nourishment required for their support tends naturally to diminish the size of the Potatoes as a crop.—ASULEAF.

TORRY HILL.

THE SEAT OF LORD KINGSDOWN.

I HAD the good fortune a week or two since of having Mr. Newman for a guide in a walk through the grounds and houses of the above-named place, and who was very attentive and kind in pointing out to me those objects most worthy of notice, and from whom I gleaned the following particulars:—

Torry Hill is situated about a mile south-east of Milstead, in Kent, on an eminence 500 feet above the sea level, and is exposed to all the biting influences an inclement winter can bring; it is within the postal district of Sittingbourne, from which town it lies five miles south. It was held, prior to the present possessor purchasing it, by one of the Tylden family, a family of some note in this county as early as Edward III. The origin of its name I have not been able to obtain with any certainty; but it is probable it is corrupted from "Tarry Hill," thus intimating that the rambler is impulsively urged to tarry and admire the many and varied beauties surrounding him. The scene which struck the beholder when its name was given has not lost an iota of its grandeur since: on the contrary, the improvements which have been made in the immediate grounds affect materially objects in the distance. Whether in the early summer morn, when a vapour cloud floats between earth and sky, shutting from the view all objects save the tops of the Sheppy Hills; whether in the dewy eve, when the declining sun throws its weakened but glaring rays upon the swell of the far-off sea; whether, when the noontide heat gives even to the dull soil a glitter, painful for the eye to rest long upon; or, again, whether in the depth of the dreary winter, when the feelings are dull and dormant as Nature itself appears to be, it would be impossible for the beholder to gaze from here without unbounded and just admiration.

The most striking object is the Sheppy Isle, which is exposed from one extreme to the other. The Swale, it may be imagined, is no small feature in the scene. I stand on the terrace. Facing northward objects, between the points of Boughton Hill and Chatham, a distance of twenty-two miles, are easily pointed out. There, directly opposite, is the Ferry of Emley, where James II. narrowly escaped being taken when flying his kingdom, and would have been roughly handled but for the timely aid of the

powerful Sir E. Hales. There is the seat of the Cromers, and there that of the Hugessens. Yonder is Tong, founded, it is affirmed, by Hengist and Horsa. There is Teynham, too, of Saxon name, and many other places of historical interest fall beneath the eye; and the whole expanse south of the Swale is composed of rich and well-tended land, interspersed with considerable tracks of woodland.

I now come to the house and grounds. At the time when Lord Kingsdown (then T. Pemberton, Esq.) took possession of the estate, both house and grounds were small; but they have been gradually extended, and at the present time both are noble in appearance and extent. The park contains 350 acres, and is well wooded. Some extensive tracks of woodland are being grubbed in and adjoining it for general improvements. The house stands in the midst of grounds well laid out, and has lately been restored, being built of red brick and white stone. The east front is approached by a carriage drive from the park, and also from the high road south of the mansion. At the entrance door is a noble portico, over which, immediately under the eoping and carved in stone, are the arms of his lordship. At the north-east angle is an octagon tower, 80 feet high, the whole of which is covered with Portland cement. Passing along the north front we came to the conservatory—a square building with glazed roof, and large lights in each front facing north and west respectively. The angles are of solid masonry, corresponding with the main building. At the south of the building are the servants' offices, which appear to be ample and very convenient.

Plants—Conservatory.—In speaking of the extremely fine collection of plants, I begin with the conservatory. This building is entered from the house from the drawing-room, and also from the saloon; the latter being very lofty, and both most elegantly decorated. On the left side of the conservatory from the saloon entrance is erected a stage, which was very gay with Cinerarias, intermixed with Tulips, of which the double Tournesol and the scarlet Van Thel were very conspicuous; there were also *Salvia gesneriifolia*, *Dielytra spectabilis*, some *Tropeolums* trained to larch fir tops, *Epacris*, *Coronillas*, *Gernistas*, *Camellias*, and many others, the whole producing a charming effect. Standing in pots in a border opposite were some *Azaleas*, and *Roses*, and a *Tropeolum* trained to the shape of a crown, and full in bloom. In the bed stood a fine specimen of *Stenocarpus Cunninghamii*, 12 feet high, a size rarely met with in this country. On either side from the drawing-room entrance were two magnificent *Orange* trees looking in perfect health: near them was a noble plant of *Araucaria excelsa*, but unfortunately it has lost its leader. Running up iron columns, and from which its flowers hung in graceful clusters, was the old and (for conservatory) valuable climber, *Clianthus puniceus*, there were many other climbers and scarlet *Geraniums* trained up the columns; some of the *Geraniums* were 14 feet high. In the borders *Camellias* were planted, which were in bloom, and of various colours, and some reaching a height of 10 feet. High amongst them was a plant of *Pittosporum tobira*, with a cream white flower, deliciously fragrant.

Lawns.—Leaving this building by the west front, large masses of *Azaleas* and *Rhododendrons* were brought fully before us, and many *Coniferous* shrubs and standard *Rhododendrons*; amongst which *Picea Pindrow* was looking very well. These beds of shrubs are sheltered from the west by a belt of *Firs*, with some fine large trees of *Ash* and *Elm*, giving the whole a forest appearance. On the north front of the conservatory and mansion is a terrace newly made, 290 feet long and 10 feet wide; and below this is a flower garden, laid out this spring, from the design of Mr. Fox, the gardener. At the west end of this is a spreading *Horse Chestnut* tree, whose under branches sweep the ground, the tree taking the form on a gigantic scale of the bunches of blossom it bears. Fronting this garden is a wall built on a level with the surface, topped by balustrading, and this again ornamented with vases. Moving to the east front we crossed the drives already mentioned, and where stands a lengthened grove of lofty *Scotch Firs*, at the end of which, near the park entrance to this lawn, were several more large beds of *Rhododendrons*, the scarlets breaking into bloom. The plants on this lawn were very fine, of which I shall mention a specimen of *Cedrus deodara*, 30 feet high, *Araucaria imbricata*, and the *Wellingtonia gigantea*. This last was 6 feet high, and 13 feet in circumference, was looking rather brown, but showing every sign of starting. *Cupressus torulosa*, *Pinus excelsa*, and many other ornamental plants with those I have before named, appear to have stood the late winter well, which is somewhat astonishing, situated as Torry Hill is, and exposed to the cold north winds, and with a soil of clay full

of flint; but it must be stated, that when planted Mr. Fox took great pains in preparing the ground for their reception. He had large holes made, and filled with a made soil, suitable for them; and their now flourishing condition amply repays for the care at first taken.

Houses.—Passing through a curved walk we came to a large dome, 20 feet high, which stands in the centre of a range of houses 160 feet long. Under this dome is placed a large cistern, the water from which forms the chief supply for boilers and watering the houses; in this, too, are kept a number of golden and silver fish. Some pyramidal Fuchsias of great height stood here, and were breaking into blossom from the bottom to the top, and will, in a short time, have a pleasing effect. A monster Tom Thumb Geranium was prominent; in two years it has made astonishing growth, being fully 10 feet in circumference. On the left was a vinery which appeared in a fair way of producing an abundant crop. Arranged on shelves were many young Fuchsias and Azaleas, which had done blooming, and some large plants of *Lagerstrœmia indica*, now generally little thought of. Entering the house adjoining (which was once a conservatory, but now converted into a vinery with a large Pine-pit in the centre) we found numbers of succession plants, which, in the winter, are removed to pits heated with dung to give the Vines a rest. The Vines will have been planted three years next June; they are planted inside the house, and are very vigorous, producing last season canes 2½ inches in circumference. In December they were cut back, leaving six eyes to break, which now have pushed out shoots, very strong, showing two or three bunches on each lateral; but it appears the gardener intends leaving only one bunch on each, and from three to six on a Vine. The leading shoot, which will not be stopped for some time, has already, since March, attained the length of 10 feet, and is 2 inches round. All the laterals are stopped one joint above the bunch. The Golden Hamburgh and Bowood Muscat were amongst the sorts grown. Round the house were shelves filled with Strawberries in pots. My attention was taken by some standard Geraniums (scarlet) 5 feet high, and trained to a circular head. In front of these houses was a range of cold pits, containing several thousands of bedding plants, intended for the garden before named. At the back was what was termed a "cold house," in which were many Heaths coming into bloom, and a number of specimen Geraniums in very good condition, well set for bloom, and not a spot or disfigured leaf about them; there were also some fine seedling Calceolarias, and many New Holland plants. A glass-roofed potting-shed joined this, which was light and conveniently fitted. Again entering the dome, and turning to our right, we entered a large Pine-stove, in which were Pines in excellent condition; some ripe, and others fast approaching ripeness. On shelves close under the glass were some very large Strawberries (Keens' seedling); also Dwarf Kidney Beans in abundance. Further on we came to the Peach-house, where there were trees trained up the back wall and roof. In the centre was fixed a large slate bench, upon which were fruit trees in pots; the Peaches were looking remarkably healthy and covered with fruit the size of walnuts. All the trees are managed on the spur system, and some of them were old trees taken up and replanted last February twelvemonth, but bore an excellent crop of fruit last season, some weighing 11 ozs. Here, too, were seedling Calceolarias on slate, near the front lights. Slate is used in most of the houses, and is found to answer well with all kinds of plants. Leaving here, opposite was a stove with a dome in the centre; on opening the door, directly facing us in a bed of soil, was the *Brugmansia suaveolens* with its beautifully white blossoms. This magnificent plant originally stood in the conservatory; but as it did not do well there, it was moved to its present situation, and has not only made a rapid growth, but flowers profusely, having blossomed freely and continuously since last November. In the same bed stood the rarely-seen plant, *Strelitzia regina*, profuse in its beautiful purple and orange flower; there were also *Thyracanthus Schomburgkiana* with its long pendulous racemes of scarlet flowers, and a strong plant of *Musa Cavendishii*. From the roof were suspended many Orchids, and in bloom, one worthy of notice being the pretty *Dendrobium pulchellum* in a mass of bloom. Under these were some fine Ferns and Selaginellas; and in other parts of the house were Cactuses and Gloxinias in bloom, and many of the Begonias—one very pretty—*Begonia Marshallii*; there were also some Caladiums, such as *Chantini* and *argyrites*, and other fine-foliaged plants, including *Cissus*, *Dracæna*, *Maranta*, *Farugium grande*, &c. At the end of this stove was a hollow wall, 200 feet long and 14

feet high, and covered with healthy-looking Peach and Nectarine trees, but not having much blossom, which is the general complaint this season. Crossing the road which leads to the back of the mansion, we came to another wall, 100 feet long, and covered with glass, on which, too, were Peach and Nectarine trees with fruit well set. The trees appear to have greatly suffered before being covered in, but there is every prospect of their recovery. Some Fig trees were covered in the same way, and showed well for fruit. At the back of this is a Mushroom-shed, 40 feet long, and heated by flues; it affords a good supply, and one bed at the time of my visit was very full.

In closing, I must say I was much gratified with everything shown me, and which reflects great credit on Mr. Fox and Mr. Newman.—F.

GROWING MELONS IN POTS.

THIS subject may be alluded to at greater length ere long, but to meet the inquiries of a correspondent ("N. D."), we will shortly state—

1. That Melons may be grown in a greenhouse from July to October, and without any bottom or other artificial heat; but only well if they have the greenhouse either to themselves, or have such plants as neighbours as would stand a rather close, moist heat when growing. If the house was kept airy enough and cool enough to keep *Pelargoniums*, *Fuchsias*, and things of that sort in sturdy vigour, then Melons would have a struggle to do well, and could only be expected to fruit well in a fine, sunny season. Otherwise if a house can be closed early in an afternoon, and only a little air given early in the morning, but when the plants are growing freely not a vast deal given during the day, the Melon will grow under glass alone for the time specified, and rather better in a pot than when planted out, as its natural luxuriance will be moderated.

2. We have had nice fruit from eight-inch pots, extra well attended to with manure waterings, but, in general, we prefer the pots to be fourteen or fifteen inches. We then prefer a plant that has been stopped at the rough leaf, and one shoot selected and tied to a little stick, and all the other buds nipped out. We would shift this plant from a 60 and a 48-pot into a 32, and then when getting full of roots transfer the plant at once to a fourteen or fifteen-inch pot, using rough, stiff mould, sometimes alone and sometimes with a little leaf mould, and we think the plants do as well with the rough soil alone. This is used neither wet nor dry, and squeezed lightly round the ball. If the soil is so stiff as to have a portion of clay in it, and thus might be apt to crack in a sunny day, we used either to put a little moss on the surface, or a little rough leaf mould or decayed dung, just to prevent the sun drawing the soil from the sides of the pot. When we were forced to use rather light, sandy soil, we have mixed a little leaf mould with it, and used it rather damp than otherwise, and beat it round the balls and the sides of the pot with a wooden pestle. I say used, because for two or three years I have had less room for this kind of culture; but previously I have adopted it wherever there was a spare place in a house, sometimes training the plants to a stout stick, sometimes setting them on the floor of a house and training them to a string fastened to the pot and the rafter above, and sometimes to a trellis in a pit in the usual way, and, however done, have had less trouble in pruning and better fruit as respects quality, because, so far as I am able to judge, the check given to mere luxuriance threw more of the sap of the plant into the fruit. Well, being thus potted, watering was given with some care, so as not to greatly saturate the soil with moisture before the roots were taking possession of it. As the shoot grew all the buds appearing at the axils of the leaves were removed, until the plant was 2 feet or 3 feet in height, according to the room that could be given it. The point of the plant was then nipped out, leaving four or six joints below it from which the buds were not removed. These soon throw out shoots, generally showing fruit at the first or second joint, and the process of stopping must be attended to as alluded to the other week.

From two to four fruit is a fair crop. We prefer the plants to be trained upright or to a trellis, though we have had good crops from pots, the pots being sunk in a bed, and the plants trained over the surface in the usual way.

Guano will do the plants good, especially if not used strong—say two ounces to a four-gallon pot; and top dressings of rotten dung too, will be useful—in fact, we prefer this rich manure watering to incorporating anything rich with the soil,

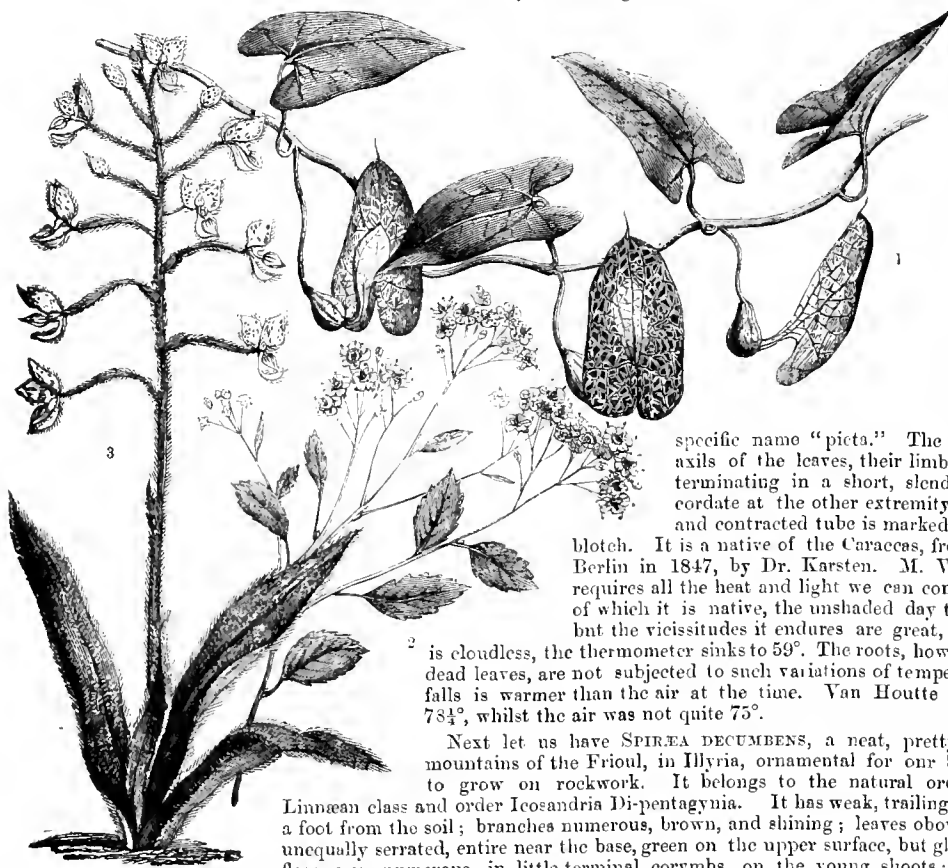
as there is less danger of cankering at the collar of the plant. We found it also advisable to have a small mound round the collar, and another small mound round the side of the pot; the latter not only tended to prevent the soil cracking there, but the water being poured in a shallow trench between the sides of the pot and the collar of the plant, the latter was not easily wetted, and the moisture could not escape by the former without wetting the earth in the pot thoroughly and regularly. As the fruits approach ripening, the pots would be better if plunged,

or half-plunged, or covered with mat or calico, &c., because too much dryness then might be hurtful, and too much moisture would be apt to militate against flavour. Except at that period I would as soon have the pots stand exposed as not. Though thus recommending chiefly pure loam and manure waterings, instead of rich soil at once, we hope if our correspondent tries the pot culture, he will not use guano, or hen-dung, or even fresh deer-dung, so strong as to kill or injure the plants. It is best and safest to use it weak and often.—R. F.

SIX WREATHS OF FLOWERS.

WREATH THE THIRD.

"What fashion will you wear the garland of?"—SHAKESPEARE.



FIRST bring ARISTOLACHIA PICTA, the plant, unbrittle stem of which is a choice foundation for any wreath or garland. In plain English it is "The Painted Birthwort," belonging to the natural order Aristolochaceae, or Birthworts, and to Gynandria Hexandria of the Linnæan system. This is a very handsome twining stove plant. Stem round and smooth; leaves deeply cordate, acute; flowers purple, and so tessellately marked with golden lines as to merit the

specific name "picta." The flowers proceed from the axils of the leaves, their limbs are about 3 inches long, terminating in a short, slender tail, and being deeply cordate at the other extremity; the mouth of the bent and contracted tube is marked by a large, oblong, yellow, blotch. It is a native of the Caraccas, from whence it was sent to Berlin in 1847, by Dr. Karsten. M. Van Houtte states that it requires all the heat and light we can command; for in the plains of which it is native, the unshaded day temperature is often 167°; but the vicissitudes it endures are great, for at night, when the sky

is cloudless, the thermometer sinks to 59°. The roots, however, in a soil covered with dead leaves, are not subjected to such variations of temperature, and the rain which falls is warmer than the air at the time. Van Houtte noticed that the rain was 78½°, whilst the air was not quite 75°.

Next let us have SPIREA DECUMBENS, a neat, pretty, hardy plant from the mountains of the Frioul, in Illyria, ornamental for our borders, and well adapted to grow on rockwork. It belongs to the natural order Rosaceae, and to the Linnæan class and order Icosandria Di-pentagynia. It has weak, trailing, tufted stems, rising about a foot from the soil; branches numerous, brown, and shining; leaves obovate, or oval, long-stalked, unequally serrated, entire near the base, green on the upper surface, but glaucous underneath. The flowers are numerous, in little terminal corymbs, on the young shoots; petals five, white, with a rose-coloured eye, and sweet-scented. It blooms in May and June.

Lastly, for to-day, add PONTHEIVA MACULATA, a curious terrestrial Orchid from Silla de Caraccas in the province of Merida, where it is found at an elevation about 7000 feet above the sea. Although it grows in soil, yet it is also found upon the trunks of old trees in the forests. In height it varies from 8 inches to 12 inches. The whole plant is clothed with glandular hairs. Two or three leaves first appear above the surface, and from among them arises the flower-stem, or scape, terminating in a loose raceme of small curiously-shaped and oddly-coloured flowers. The colour in one part of the flower is light ashy grey, dotted with brownish-red, and in another part yellowish, streaked with purplish-red. It blooms in February. A very good idea of the plant may be obtained from the coloured drawing of *Ponthieva petiolata*, in the "Botanical Register," ix. t. 760.

POMOLOGICAL CLEANINGS.

EARLY STRAWBERRIES IN FRANCE.—On the 18th April I gathered the first ripe Strawberries, May Queen, from the open ground about 6 feet off a south wall. They were delicious. On the 21st, Princess Frederick William alongside of May Queen commenced ripening; whilst Black Prince, also in the same situation, will require a week yet before fit for use. Under glass May Queen proved again to be a valuable variety for early forcing, and produced as usual a very abundant crop. Oscar was very good, and is, perhaps, the most solid and firm of all kinds. It will consequently bear carriage better than most sorts. I had six pots each of Highland Mary and Richard II., but,

alas! they were scarcely eatable, being exceedingly sour. They might do in the room of Gherkins, and would in that case require but little vinegar. Ingram's Prince Arthur is very fine, both as regards shape, colour, and flavour. Carolina superba, and Sir Harry, were, as usual, exceedingly fine. Two new kinds of Mr. Nicholson's seedlings, called Orb and Garibaldi, are very promising, and deserve to be extensively grown. Stewart and Neilson's Prince Alfred is very large and handsome, but a little woolly, though of nice flavour.—FERDINAND GLOEDE, *Les Sablons, near Moret sur Loire (France)*.

GROUND VINERIES.—It has often been said "there is nothing

new under the sun," and our daily experience assures us of the fact. Training the shoots of Vines along the ground, was recommended by Vispre in his "Dissertation on the Growth of the Vine," published in 1786, and was practised by him on a small scale at Chelsea, where "the Grapes were considerably larger than those of the same kind growing on a south wall and well ripened." He also states that Rev. M. Le Brocq had taken out a patent for training fruit trees in this manner. Speechley says, "Fruit trees of various sorts have been so trained at Welbeck for fourteen years." Even the great Lord Bacon suggested this method of growing Vines. He says, "In some places these Vines are suffered to grow like herbs, spreading upon the ground, and the Grapes of these Vines are very large."

SPROUTING ONION SEED.

"How is it you raise so large and nice Onions?" I asked of an Iowa farmer, as I was sitting at the table with him, and observing some on the table.

"Well," said he, "we sprout the seed with boiling water, and then plant it early and in good ground."

"Sprout the seed in boiling water!" I exclaimed inquiringly. "What do you mean, sir, by that? Won't boiling water kill the seed?"

"Not at all," he replied, "but it will sprout them in one minute's time."

"It will! It looks incredible!" I replied, with surprise.

"Well, you try it," he replied, grinningly, "when the time comes to plant, and you'll find it just as I tell you."

And sure enough, when spring came, and my neighbour was about planting his Onion seed, and being present, I said:—

"Jewell, last winter, there was a man told me in Iowa, that to pour boiling water on black Onion seed would sprout it in one minute. Suppose you try?"

"Very well," said he. And taking the tea-kettle boiling from the stove, he poured the water thus boiling on the seed, which he had in a tea-saucer. Looking at it for a moment, he exclaimed, "My conscience! you have told rightly. Only look there!"

I looked, and behold, the little sprouts, about as large as horse hairs, were shooting out of the opened ends of the seed! He did not retain the water on the seed above three seconds, and in less than one half minute after it was poured off, the sprouts were projecting from the seeds.

My Iowa friend assured me that this process would advance the growth of the Onion from two to three weeks beyond the ordinary method of planting without sprouting. Try it, gardeners and farmers; much may be gained by it.—(Correspondent in *Dollar Paper*.)

ENTOMOLOGICAL SOCIETY'S MEETING.

THE May Meeting of the Entomological Society was well attended, the chair being occupied by the President, J. W. Douglas, Esq. The donations to the library consisted of the recent publications of the Linnean, Royal, Zoological, and other Societies, and various periodical works, together with an interesting memoir recently published by Miss Staveley, containing an elaborate account of the microscopic structure of the apparatus by which the two wings on each side of the body of insects are kept together during flight, and which consists of a series of minute hooks along the fore margin of the hinder part of the wings.

Mr. Andrew Murray, the new Assistant Secretary of the Royal Horticultural Society, was elected a member of the Society.

Mr. Stainton exhibited some leaves of the Birch, each containing a minute mining Caterpillar, which had recently been discovered to belong to the genus *Micropteryx*, a group of very interesting minute Moths of rather doubtful position in the system, whose economy had hitherto remained problematical. They are entirely destitute of legs, with the body gradually tapering to the tail; and they have the peculiarity of ejecting the excrement continuously, so that it forms when dry a thin black thread within the burrow of the leaf. He also exhibited the larva of *Antispila*.

Mr. Samuel Stevens exhibited recent specimens of the very rare *Saperda oculata*—a handsome Beetle formerly taken in the Fens of Cambridgeshire, but which had been supposed to have become extinct. Also, some rare Beetles of the families *Cetoniidae* and *Paussidae* from Africa and India.

Dr. Power exhibited specimens of a new British genus of Hemiptera, being the *Micropus sabuleti*, belonging to the family Lygaeidae, taken at Merton and Folkestone. Mr. Wollaston had also found it in Dorsetshire.

Dr. Wallace exhibited a specimen of the Indian Death-head Moth (*Acherontia Lethe*, Westw.), which had been taken alive by a lady at East Cowes.

Mr. Hayward exhibited *Eurypterus picipes*, taken among dead leaves at Sanderstead. And Mr. Machu various rare species of small Moths of the genera *Coleoptera* and *Gelechia*.

Dr. Wallace congratulated the Meeting on the recent establishment of a Professorship of Zoology, by the Rev. F. W. Hope, at Oxford, and the nomination of Mr. Westwood thereto. He felt convinced that in the hands of that gentleman the progress of the science of entomology would not be neglected.

Professor Westwood explained the reason which had led to the postponement of the course of entomological lectures which he had announced—namely, the necessity for the removal of the Hesperia Collections to the new museum recently completed at Oxford.

An interesting memoir by T. V. Wollaston Esq., was read on the species of *Coleoptera*, which inhabit the Euphorbiaceous trees in the Canary Islands and Madeira. He had been led to believe that that portion of the vegetation of any place which was more especially peculiar thereto, would be most probably productive of the most characteristic of its insect inhabitants. He had accordingly carefully examined the Euphorbiæ on the islands in question, where they grow to the size of trees, and had found that, although their leaves were comparatively free from the attacks of insects, not fewer than forty-four different kinds of Beetles attacked their stems, especially in a decaying state, and that, too, often in perfect myriads. Of these forty-four species, thirty-two exclusively confined their attacks on the Euphorbiæ; the other twelve were, however, occasionally met with on other trees. In Madeira the Euphorbia had been nearly destroyed by the inhabitants, so that he had only found eight of these Euphorbian species in that island, which originally was almost covered with groves of that tree. It was, therefore, evident that in this instance, from the careful manner in which he had investigated the Coleopterous productions of Madeira, the species of Beetles originally intended by Nature to subsist on the Euphorbiæ had not been able to modify their habits and transfer themselves to a fresh kind of food, but had died out with the trees themselves. As might be expected, amongst these Euphorbian Beetles were several new genera.

Mr. F. Walker communicated a paper entitled, "On the Distribution of Insects in the Channel Islands of 1860;" but it consisted simply of an account of the topography of Jersey, with a list of the species of Spiders found in that and the other islands.

Dr. Knaggs exhibited and explained a novel kind of breeding-cage which he had invented for rearing insects. It consists of a wide glass cylinder (the bottoms of glass shades cut off in the glass warehouses), the bottom of which stands upon an unglazed plate, in the centre of which is a hole, through which the stems of the food plants are to be stuck. The top of the cylinder is to be covered with gauze.

WORK FOR THE WEEK.

KITCHEN GARDEN.

EMBRACE the first opportunity afforded by the ground being moist for thinning Onions, Carrots, Parsnips, Turnips, &c. Let the hoe be run through the crops sown in drills, not merely skimming the surface of the soil, but moving it 1 inch or 2 inches in depth. This, while it destroys the weeds, at the same time pulverizes the soil and checks rapid evaporation. *Broccoli*, prick out any that is sufficiently advanced in growth. Sow a full crop of Cape and Grange's Early White. *Cardoons*, sow a late full crop. *Celery*, plant some of the most forward into trenches. *Cabbage*, sow a little seed for autumn produce, any of the small sorts to be preferred for this sowing. *Cucumbers*, peg down the plants in the ridges as they advance in growth. *Onions*, after thinning loosen the soil between the rows; and if the weather is dry give them a good watering. *Peas*, the last sowing of Knight's Dwarf Marrow to be made, as it is longer in coming into bearing than any other. *Radishes*, make another sowing of the various sorts. *Mint*, make new plantations. Draw the young suckers by hand; top, and plant them 6 inches apart. *Scarlet Runners*, stake, after drawing a little earth to them with the hoe.

FLOWER GARDEN.

The bedded-out plants to be duly attended to with water in dry weather until they begin to make fresh growth; but with the present favourable weather and proper attention they will soon cover the beds, and will repay all the trouble and attention paid to them; but if through inattention they are allowed to get into an unhealthy state at present there will be some difficulty and much loss of time in getting them into free growth. Make a full sowing of Brompton Stocks and all biennials for flower-garden purposes, and a successional sowing of some of the most showy annuals for autumn blooming. Gather seed of Auricula as soon as the seed-vessels appear brown, and before they open. Continue to propagate Chrysanthemums by taking off the tops, and sticking them under a hand-glass on a shady border. Cut back those intended for specimens into proper shapes; if cut flowers are wanted, do not take off the tops, however straggling the branches grow. Dahlias planted out and making growth to have three or four stakes round the centre to support the side branches as they grow. Take off side shoots from Pansies and from double Wallflowers, and strike them under a hand-glass on a shady border. Hollyhocks to be staked, tied, and attended to as they advance in growth.

FRUIT GARDEN.

When the Strawberries are set give them, if the ground is not very rich, a good soaking of liquid manure. Still watch for insects of all kinds, and follow up continually all disbudding matters. Pick grubs off Apricots, Pears, and Plums; they are generally to be found in curled leaves, and the caterpillars of the lackey moth in groups. Thin the shoots of the Raspberries to two or three of the strongest, if not already done.

STOVE.

Let rambling shoots have frequent stopping. Shift Clerodendrons, Erythras, Gloriosas, &c., and give liberal supplies of weak manure water to plants in robust health. Stove plants that have arrived at a certain and required development may be removed to adorn the conservatory, and to prevent them breaking into unnecessary growth. Orchids will now require frequent waterings and syringings, especially the *Erides*, *Dendrobiums*, *Phalenopses*, *Saccolabiums*, *Vandas*, and *Sobralias*. See that the baskets containing *Gongoras*, *Stanhopes*, *Peristerias*, &c., are well saturated when they are full of roots.

GREENHOUSE AND CONSERVATORY.

Do not delay any longer to place the young growing plants of Heaths and other such hardwooded plants in a spare pit where the lights can be readily removed, to take advantage of dews or light showers, and the shading, which will sometimes be necessary, can be easily removed; the pots to be plunged about half their depth in cinder ashes. Examine them frequently for mildew, and apply sulphur the moment it is perceived; some of the softwooded varieties of Heaths being very liable at this season to be attacked by that pest. Common and fancy *Pelargoniums* for late blooming will thrive well in a cold pit, where they can be protected from heavy rains. *Kalosanthes* (*Crasulas*) to be trained neatly, and watered with liquid manure occasionally. Train *Fuchsias* in the desired form, and pinch back weak and straggling shoots. *Rhododendron arboreum* and its varieties should be fully exposed to the sun under glass to have perfect foliage and an abundance of flower-buds. Partial shading is their ruin as regards their foliage and the forming of their flower-buds.

FORCING-PIT.

This pit may now be profitably filled with plants requiring the aid of additional warmth to bring them kindly into bloom; among these may be classed Cockscombs, Balsams, Hydrangeas, Gardenias, &c. The propagation of *Pelargoniums* may also be carried on at the same time in this pit, as well as many kinds of softwooded plants.

PITS AND FRAMES.

Shift and attend to such plants as are intended to form specimens; sprinkle with water, and shut up closely late in the afternoons of hot days. Put in cuttings of choice herbaceous plants, in order that they may be rooted before the pits or frames are again wanted for cuttings, to supply the flower garden next year. Continue to repot tender annuals as soon as they fill their pots with roots.

W. KEANE.

DOINGS OF THE LAST WEEK.

STILL no rain, though showers are heard of. Dug ground for succession garden Beans, Dwarf Kidney Beans, and Peas, drawing out the drills of the taller hollow, to permit of a good watering without covering the seed much. A friend covered some 8 inches deep two months ago, to save all earthing-up, and succeeded certainly; for there will be none to earth, the Peas having already resolved themselves into their primitive elements. Hoed the ground amongst Sea-kale, Artichokes, and Asparagus, the latter getting overrun with the *Convolvulus sepium* (Devil's Guts the men call it) the smallest bit of which will grow, but which frequent cutting will kill by exhausting the roots. Last season we had a piece of ground of which it took entire possession; and as it was small we let it alone to grow rank and luxuriant; cut it then with an old scythe; cut it a second time; and then, cut it with the Dutch hoe every time a bit appeared; and on digging it this season, scarcely a bit of white root was to be seen, though, previously, every spadeful of soil would be a mass of white roots. I once tried another plan with a bad piece—covered the ground with 15 inches of short grass from the lawn, the heating of which did for them. It is one of the worst things in a garden to eradicate; Twitch and Dandelion are nothing to it. Will cease cutting beds of Asparagus intended for forcing—in fact, do not cut them much; will give a little salt as soon as there is the appearance of rain. Sowed more Turnips and Radishes in alternate rows, watering the seed in the rows with a rose of a watering-pot before covering. In such dry weather do so with all seeds in the open ground. Dug over ground for winter Greens, to be ready when rain comes. Cut off the flower-tops of Brussels Sprouts and Scotch-kale, to afford, along with Spinach, a few dishes of nice greens before the Cabbages are well hearted, when all the stumps will be removed, and be burned, or rather charred. Watered Cauliflowers to prevent them standing still. Staked Peas, sowed Spinach between them, and thoroughly cleaned and hoed Onions, Carrots, Parsnips, &c., waiting for rain to enable us to thin them easily.

Ran the hoe again through Strawberry-beds, which are crying out for a good rain to enable them to swell and set their fruit nicely. Have long noticed that a fine shower when Strawberries are in full bloom seems to help the dispersion of the pollen rather than otherwise, and hence frequently imitate it in fine sunny days with plants when in a forcing-house. Covered a border with sashes to hasten maturity. Keep thinning out of the houses as room can be found for them in pits and frames, though having merely the protection of glass, as they will be better flavoured than when in shady houses. Syringed, disbudded, and destroyed insects on Apricots and Peaches, shortening or removing strong shoots that would act as robbers to the rest, and be of no use afterwards. On young trees shortened the side shoots of Cherries, Plums, &c., by nipping off their point, and allowing only the leader to grow. Gave the first nipping to dwarf Pears and Apple trees; the latter showed well for bloom, but were terribly injured by an army of Tomtits, that did great destruction in a single day, clearing off some trees entirely of their blossom-buds before they were noticed, and departed in a few days after the poor compensation of leaving some scores of their bodies behind them as the result of shooting and trapping. Caterpillars are more numerous than usual this season on Pears, Cherries, &c., and it is a nice job for boys to pick and squeeze them. On a few Gooseberry trees in an orchard-house the caterpillar appeared, and still more on a few Currants, both of which we wanted early for tarts; but in the open air all seems right as yet, but as a preventive will give all the bushes a good scouring from the syringe of lime and soot water clear, made by placing a bushel of soot and half a bushel of lime in a hogs-head-barrel, and using it when it had cleared twenty-four hours after being made. This will be acrid enough to make the caterpillars drop if there should be any, and the back of the spade will soon settle them. Engined Morello Cherries just set and setting with a weak solution of Gishurst, the men liking it just as bad as the strong solution of lime and sulphur and a little soft soap, long used and several times described, and which they declare it much resembles—at least, the smell is much the same. The removing of the smell as spoken to the other week will be an advantage, if the insects like it as bad in the sweet state, of which I am as yet rather doubtful. Watered, stopped, and regulated Melons, giving the ripening fruit plenty of air, and keeping the surface of the soil dry. Watered Vines in pit for about the last time before the fruit will be cut. Thinned fruit

in second house, the last just coming into bloom, kept at from 63° to 68° at night, and when fruit is set, especially Muscats, will lower the temperature a little. Earlier houses are allowed to have the laterals pretty well untouched, to encourage root action to swell off a very heavy crop, and as they approach maturity the laterals will be thinned by degrees. Kept syringing the Peach-house to keep down red spider, as that will soon have to stop as the fruit is ripening. Gave plenty of water to Figs, and air early, as dryness will be apt to make them drop, and a close moist atmosphere with the sun strong on the house will be apt to parboil them at the points, and then they will begin to decay and rot, instead of swelling freely and ripening kindly. Whether planted out or in a pot, if well drained to prevent stagnant water, it is next to impossible to over-water Figs when the fruit is swelling freely. When at rest the roots should be dryish, not dust dry. Even when swelling, stagnant water at the roots will cause the fruit to drop. When pots, therefore, are set in saucers, the water in the saucer should not long be above a quarter of an inch deep, and then that will be considerably below the drainage.

Amongst plants, Gloxinias, Caladiums, &c., have been shifted. Azaleas, forward ones for want of a better place have been placed out of doors, with a little Nottingham netting over them. Ditto some large hybrid Rhododendrons. Cytisus, &c., have been placed in a similar place from the conservatory, after being well syringed and slightly pruned. Pelargoniums have been trained; tied out when necessary. Cinerarias mostly removed, and the places supplied with Fuchsias, scarlet Geraniums, &c. Means will be taken ere long to grow on a fresh stock for succession. Watered creepers planted out in conservatory. Shifted Ferns and Achimenes; but was chiefly engaged in bedding out, all of which work would have gone on more smoothly could we have calculated on a little shower now and then; but the plants stand better than could be expected—the annuals transplanted from a bed, as previously noticed, showing no signs of flinching, and their straight lines and even beds will be procured with more certainty than from sowing, more especially when water is such a scarce commodity that watering such seed-beds could not be thought of. We have thus, among other things, planted out two large beds of each of the two *Corymbes*—*atro-sanguinea*, and *Drummondii*, and we have strong confidence that few of our best things will present a better mass of continuous bloom, though any one that could give a little trouble might have such beds at the expense for seed of some six pennies, less or more. Another old-fashioned favourite of ours, for beds or rings, is the yellow Hawkweed, which, so treated, will generally present a mass of light yellow from June to November, and about a foot in height. The *Saponaria calabrica* for low beds and belts, and the *Chrysanthemum tricolor* and aureum, and the varieties *Burridgeanum*, make nice lasting beds, 18 inches high, and so do the new varieties of *Dianthus laciniatus* and *Heddevigii*, about a foot high; but these should be pricked out separately, and protected before final planting. We have just used them as an edging for *Phlox Drummondii*, their stiff habit will make a sort of fence for the *Phlox*. Beds of the best varieties of the above *Phlox* will generally stand well from seed sown in a little heat, pricked off; and then, after being grown and hardened off, planted out. The finest kinds raised from cuttings are very apt to give way just about August. The same thing sometimes takes place with *Petunias* raised from cuttings, and they must be so raised to secure the same shade of colour; but seedlings seldom give way before the frost comes.—R. F.

TRADE LISTS RECEIVED.

General Spring Catalogue for 1861, of William Cutbush and Sons, Highgate.—This is a good catalogue of bedding things; besides which, we observe lists of Azaleas, Gloxinias, Ferns, Dahlias, *Phloxes*, *Pelargoniums*, &c.

A List of Select Plants by F. & A. Smith, Park Road, Dulwich, S., 1861.—An excellent catalogue of what is called soft-wooded and bedding plants, for the extensive cultivation of which Messrs. Smith are so well known.

Catalogue of Geraniums, Fuchsias, &c., by Edward Taylor, Malton, Yorkshire, 1861.—A well-got-up and spirited catalogue of softwooded plants, the contents of a country nursery, which appears to keep pace with the times.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

VARIOUS (*K. E. T.*).—Mr Roberts has never written but one book on the Vine, and we are unacquainted with his present address. We believe he has retired from the gardening profession. Leave the shoots of the Asparagus to seed, and cut them down when they begin to die off in the autumn. The best substitute is leaf mould, which is, as you perhaps know, decayed leaves, wood, and other vegetable matter. This mixed with about one-fourth its bulk of sand, and a little turfy loam, will grow Rhododendrons and Azaleas as well as peat; but they will also do very well in good sandy loam.

NEW PEA (*Essex*).—From what you say of your new Pea it must be a fine variety; but it is of no use attempting to send it out unless you have secured a reputation for it. Send half a pint of the seed at once to the Fruit and Vegetable Committee of the Royal Horticultural Society, addressed to Dr. Hogg, the Secretary, and it will be proved in the garden at Chiswick. If it should turn out all you say about it, the Committee will no doubt give it the character it merits.

ZICRYA DISEASED (*An Old Subscriber*).—It is covered with a species of scale (coccis). Treat it as we directed last week under the title of "Scale Insect on Cotoneaster," page 163.

NAMES OF VERBENA AND GERANIUMS (*Elencor*).—The varieties are far too numerous and too nearly alike to enable names to be given from small withered specimens.

PEACH SHOOTS GANGRENING (*Amygdalus*).—It is not being trained to galvanised iron wire that causes the gangrene, for we know many trees so trained that are not gangrened. We consider the roots have descended into a wet subsoil; or, at all events, that there is something wrong about them. Are the trees much overshadowed by Vines or other plants?

HERBACEOUS PLANTS (*Rusticus*).—See what is said to-day in "Doings of Last Week," and by Mr. Beaton.

PIT FOR FLOWER FORCING (*T. Danvers*).—An eastern aspect will do, though it is far from the best for the purpose.

VARIOUS (*A Subscriber, Brasted*).—You do not say what your Yucca is; but whatever it is, the flowering will be hastened, if kept in a pot, by giving it plenty of manure water in dry weather in summer, and keeping it dryish in winter. The steam of the dung-bed and want of air have injured the Achimenes. If you keep them there, spread 6 inches of ashes over the bed; set the plants on the bed, not in it, and leave a little air at the back of the frame constantly night and day. The fresh leaves will be saved; the discoloured ones will never come clear again. You may propagate your Gloxinia leaves two ways. The leaves you can spare take off, and plant them singly in sand round the sides of a small pot, as you would any other cutting, and plunge in a sweet hotbed, or merely set them on a shelf in a warm place where they will be shaded a little. Ere long a good tuber will form at the bottom of the stalk of the leaf. The other plan, though there are others, is to take the leaf, cut it into pieces, and insert the pieces like cuttings, and shade a little as above. The tubers will be smaller.

MELON PLANTS DECAYING AT THE COLLAR (*A. B.*).—Caused by too much moisture and a confined atmosphere. Your only chance is to scrape off the rotten part at the collar, and surround it with equal portions of lime and charcoal—a handful for each—and put a piece of cloth over the heap to prevent the water touching it, and give no water near the collar of the plant.

VINERY (*B. C. H.*).—If we were in your case, we would plant new Vines outside, raising the border if possible with fresh material for a yard in width at first, and keep the old Vines in the house, to get some fruit for a year or two, until the young ones came into bearing. We have no doubt that the Vines have got too deep and exhausted. If they had been at all strong, we would have raised and replanted them in October.

BROCCOLI (*T. C.*).—Your Broccoli (weighing 4 lbs. and 32 inches round) is very good indeed. Your remarks as to the waste of horse sewage are very true. We lose nothing of the kind we can save. We have reason to learn from Chinese and other orientals. We send thousands of miles for guano, and allow pretty well as good at home to be lost, or to be made into sources of pestilence and plague.

YOUNG PELARGONIUMS AFTER FLOWERING (*Oxford*).—These are more tender than large florists' Pelargoniums. They should not be dried so much, nor pruned so close. They are better without any bottom heat. Prune when pretty well hardened, and when they begin to break reshift into smaller pots, and if the roots are right prune them but little. We think you had let them become too dry, or put them into strong sun at once out of comparative shade.

STOPPING VINE SHOOTS (*An Amateur*).—If your Vines are spur-pruned, there was no harm in stopping all the shoots. If on the rod system, you must select the strongest that has broken afresh, and train that, and keep the others all stopped again.

FUCHSIAS WITH A SINGLE STEM (*Idem*).—To have strong rods of Fuchsias, you must commence with one shoot. Say, you have a nice bushy plant now; well, next Christmas, or before, cut that plant down to the ground, or below it, put it in a little heat, and save one shoot that comes out of many. If you strike a plant now, or later, that must be kept to one stem at first. If the plant throws out regularly, all well and good; but if not, the leader must be stopped, and a new leader chosen, so that the plant may be bushy to the pot, as well as straight in stem.

BEGONIAS (*M. F.*).—These new Begonias will do very well in a warm greenhouse in summer. They thrive in peat and loam, with a little sand. To keep the colour well, the plants should have a little shade in summer. In winter they like from 45° to 55°, and less water. They do not dislike a little bottom heat, especially in spring, and will have larger leaves in consequence; but they will do very well on the shelf of a stage.

NOURISHING COMPOST (*Sheffield*).—Nothing will answer better both as a deodoriser and an assistant fertiliser than the charcoal dust you can obtain.

GOOSEBERRY CATERPILARS (*A Constant Reader*).—In our Number for May 14th we mentioned dusting them with White Phosphore powder. Covering over the soil with tan about the roots prevents the larvæ descending into it.

VINE BUNCHES ULCEATED (*P.*).—Such appearances are generally the result of a too moist, close atmosphere, and want of regular root action, but is no doubt often the result of a want of ripening of the wood the previous year. When we have met with it, however, we have thought it to be caused by damp and cold. The fruit crops in general are unsatisfactory this season.

VEGETABLE MARROWS, &c. (*W. Dixon*).—Your Vegetable Marrows will do very well on long poles over an arch, over an arbour, or against a wall. Train to the height, or nearly so, and if on a pole then stop, and stop the side shoots at every other joint. If on an arbour, let them run with but little stopping. We have had them on a single pole, the main shoot carefully fastened to it, and all the others shortened about 18 inches long; but the fruit on them must be cut before they are over-heavy. A six-inch pot will do well for the plants you mention; but they will become drawn in a sitting-room, unless plenty of air is given. After the 1st of June they will do better on the window-ledge out of doors.

GERANIUM LEAVES (*Sarniense*).—The leaves of your seedlings tell that you have got into the strain of Baron Hugel and Bishopstow scarlets; but unless your superior climate assists you, you are so late in this field as to have little chance in the market against English breeders, who have been working in the same strain these ten years past.

PLANTING FLOWER-BEDS (*T. M.*).—Plant the six ray-beds in three match pairs; every two of them *opposite each other* plant with the same kind of plant, as two with yellow *Calceolarias*, two with some variegated *Geranium*, and two with *Tom Thumb*, or some dwarf scarlet *Geranium*; but as you gave no index to your ways of procuring the plants, the above is merely to show the right way to plant such beds standing apart in a group round a centre bed.

CUPRESSUS MACROCARPA (*J. S.*).—The discordant results of last winter's influence over the Conifers is very remarkable. On the chalk hills near Winchester, *Cupressus macrocarpa* is quite unharmed, whilst that of your friend, near Worcester, "has been nearly destroyed." No application to its roots, except water in very dry weather, will be of any use. In such dry weather syringing the stem and branches might be useful. If it vegetates let there be no pruning away of the dead parts until late in the summer.

NAMES OF PLANTS (*D.*).—*Pyrus aria*, the White Beam tree. (*A. B.*)—1, *Weigela amabilis*; 2, *Calycanthus floridus*; 3, *Viburnum lantana*; 4 and 5 appear to be, the former a *Cornus*, the latter a *Ribes*, probably *C. sanguineum* and *R. alpinum*; but there are no flowers. (*Hibiscus*).—The Fern is *Ceterach officinarum*. The small red flower, though much crushed, seems to be *Ailonea Warczewiczii*. The other leaf is not recognisable. (*S. Devon*).—1, *Potentilla tormentilla*; 2, *Lysimachia nemorum*.

FLOWER SHOWS FOR 1861.

JUNE 5th and 6th. ROYAL HORTICULTURAL SOCIETY. (Plants and Fruit.) *Garden Superintendent*, G. Eyles.
JUNE 5th. PORTSEA ISLAND. *Sec.*, H. Hollingsworth, Southsea.
JUNE 11th. ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY. (Plants and Flowers.) *Sec.*, W. R. Hobbs.
JUNE 12th and 13th. YORK. *Sec.*, J. Wilson.
JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. *Sec.*, E. Carpenter.
JUNE 25th. ROMFORD. (Plants, Flowers, and Fruit.) *Sec.*, A. Cooper, Romford.
JULY 3rd. PORTSEA ISLAND. *Sec.*, H. Hollingsworth, Southsea.
JULY 6th. CRYSTAL PALACE. (Rose Show.) *Sec.*, W. Houghton.
JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) *Garden Superintendent*, G. Eyles.
JULY 18th. TOWCESTER FLORAL AND HORTICULTURAL SOCIETY. *Sec.*, T. B. Rodhouse, Towcester.
JULY 18th. PRESCOT. *Sec.*, J. Beesley.
AUGUST 9th. BELFAST ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) *Sec.*, George A. Cartthers.
AUGUST 14th. PORTSEA ISLAND. *Sec.*, H. Hollingsworth, Southsea.
SEPTEMBER 2nd. HECKMONDWIKE. (Floral, Horticultural, and Agricultural.) *Sec.*, G. Kelley, Heckmondwike.
SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) *Sec.*, W. Houghton.
SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.
SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. *Sec.*, E. CARPENTER.
NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.
NOVEMBER 12th and 13th. STONE NEWINGTON CHRYSANTHEMUM SOCIETY. *Sec.*, W. T. Howe.
NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) *Sec.*, W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

JUNE 4th, 5th, and 6th. BATH AND WEST OF ENGLAND. *Steward*, S. Pitman, Esq. Entries close May 4th.
JUNE 19th. TONAW. *Sec.*, Mr. Joseph Richardson. Entries close June 12th.
JUNE 19th, 20th, and 21st. COALBROOKDALE. *Secs.*, Messrs J. B. Chune, and Henry Boycroft, Coalbrookdale.
JUNE 25th. ESSEX. *Sec.*, Mr. W. R. Emson, Slough House, Halstead, Essex.
JUNE 28th. DRIFFIELD. *Sec.*, Mr. R. Davison. Entries close June 22nd.
JUNE 28th and 29th. TAUNTON. *Sec.*, Mr. Charles Ballance. Entries close June 14th.
JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. *Sec.*, Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.
JULY 18th. PRESCOT. *Sec.*, Mr. J. Beesley.
AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. *Sec.*, Mr. W. Houghton.

SEPTEMBER 3rd. POCKLINGTON (Yorkshire.) *Sec.*, Mr. Thomas Grant. Entries close August 26th.

SEPTEMBER 24th. BRIDGNORTH. *Sec.*, R. Taylor, Bridgnorth.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. *Sec.*, Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.

DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. *Sec.*, Mr. W. Houghton.

THINNING-OUT POULTRY.

WE left off at "exhibition fowls." Excellence, not to say perfection, will always be the exception in poultry as in everything else. The Lord Rivers, who was so well known for his love of greyhounds, and his almost uniform success at coursing meetings, was one day asked the secret of it. He said, "He bred well, trained well, and hung well." We believe this to be necessary wherever there is to be great competition.

We have passed the breeding stages, and we now have a yard full of promising chickens, rather an *embarras de richesses*—too many to exhibit, too many to keep, far too good to kill, and much too valuable to sell at market price. "What am I to do?" says the owner. "I wish the *Poultry Chronicle* would advise me." So it will, respected reader, and, it may be, fair correspondent. We are not intending to tell you that there is a place in London where they will make their weights in gold, nor that there is a person somewhere who will buy any number at any price; we are simply bent on advising you to ask the advice of a friend or neighbour about your birds. It is astonishing how easily they will overcome all your difficulties.

We will go with you among your Spanish chickens. Your arrangement is an admirable one, and having, as they have, a cottage run, we do not wonder at their looking so well. Now they are brought together, he good enough to show us your best. You cannot. Well, then, we will show you your worst. Kindly tell your lodge-keeper, or your labourer's wife, or whoever has charge of them, to catch up any chicken we point out. Look at that young Spanish cock, his comb is certainly not straight; now that scarcely perceptible twist will never be less, it may be larger, it will become more objectionable, but it will never disappear, and it will very likely bring the comb over with it. Catch him up, and those three pullets you say you consider the most promising. That you have been taught to look for long, thin, skinny faces, and you have it in them. So you have, but they are result of weakness and ill health; these have never grown as they should. If thin skinny faces are to be considered valuable in Spanish pullets—and they unquestionably are—they must be allied with first rate condition, and the pullet that looks "all skin and grief" must be as plump as a partridge when handled. Look at those pullets, younger by some weeks, their faces are not only skinny, but they are becoming white. Bad comb cock again, take him away. Very seedy pullets, take them away. This would be the burden of the song, and although you probably might in some instances have cause for remonstrance, yet you would be surprised with what facility a judge—without leaning, partiality, or favour—can divide and condemn chickens from a run, where the owner could see only perfection.

Having mentioned Spanish as the first, we will make a few more remarks on that breed. There was last season a marked increase in the number of amateurs of these beautiful birds, and there was a large sale for them at very good prices. They were also better in quality than they had been for some years. There has been an unusual demand for eggs, and, among the many chickens hatched, some will perplex their owners.

Those to whom poultry-keeping is a mere pastime, and with whom the expense is unimportant, can of course do as they like, and they may not care for our scribbles; but to those who wish to combine the fancy and the pocket, we say, Beware of pets, and beware of fancies. (Let neither your wife nor daughters go with you when you have hardened your heart, and determined to destroy some. There is a very kind-hearted, nice, blue-eyed girl who will not hear of the chickens she reared being killed; she is very mild, but she speaks with great firmness when she says she *will not* eat them if they are. Her dark sister says she hasn't patience with papa, and he may rear his early chickens himself next year. The wife and mother thinks it is unkind to tease the girls, and try their dispositions. The smaller ones don't care for the big chickens; but there are two or three little dears—one with a broken wing, and another with a crooked bill—that shall not be taken away; and when mischief says, Stop till they are gone to bed, they declare they will take the darlings up with them.)

Do not be led away with the notion that chickens will grow out of faults; they cannot do it. The curve in the comb of the cock, the slight hump or twist in the back of the pullet, the very trifling, almost imperceptible, bowing of one leg will only increase as the birds grow older. As we are still dealing with Spanish, let us say that as it is now admitted the cocks *must* have upright combs, there will be no excuse for keeping chickens that lack the quality. A defect in the comb is visible at ten weeks old in the cock chicken. It is impossible to speak with as much certainty about the pullets; but there is no difficulty in selecting those that are very long in head, body, legs, and face—the latter pale *all over*; eschewing such as are squat, round, and hen-like at an early age, such generally have small, round, white faces that do not drop; and others that have all below the eye perfectly white, while above it is an angry red, such seldom become quite white. Excellence in Spanish is in a great measure dependant on age, and, therefore, you may almost always make a fresh selection of your birds every month or six weeks. It is never safe to reject pullets too young, as many a valuable hen has been in danger when a pullet.

PROFITABLE POULTRY KEEPING.—No. 6.

(Continued from page 146.)

FOWLS AND THEIR BREEDS.—Their name is not exactly legion, but the pure-bred, and the numerous cross-bred, make up a goodly number. I shall confine my observations to those with which I had to do practically. My first lot were obtained as I could (*vide* No. 2, page 70.) I had—1, the Barndoor; 2, the Game; 3, the Dorking, speckled and white; 4, the Spanish; 5, the Everlasting Layer; 6, the Cochins; 7, the Poland; and many nondescripts.

This list must not be taken as placing the fowls in order of merit. After the first season I weeded rather extensively. My object being profit alone, I limited the stock to those breeds which had proved the best layers, the best sitters and nurses, and whose chicks were hardy and grew quickly.

When a late master of the Chapel Royal heard that a distinguished member of the musical profession had been knighted, he is said to have observed, "I suppose it must be on the score of his merit, not on the merit of his score."

Now I have placed the following breeds both on the score of their own individual merits, and on that of their progeny.

1. *The Speckled Dorking.*—This breed, taking it for all purposes, I place first. The hens are good layers, good sitters, and good nurses. Their chickens come quickly to profit, and are preferred by the dealers for size, plumpness, and good colour.

2. *The White Dorking.*—These are inferior in some points to the speckled, and superior in others. They lay scarcely so freely, are not so good sitters, are equal as nurses. Their chickens less hardy, but superior in colour.

3. *The Everlasting Layer* (Hamburgs).—This pretty and useful breed I hold in high favour. The hens lay from 200 to 250 (I have known 270) eggs in the year. I had one small hen, a silver-pencilled, which laid me 227 eggs in the twelve months (actually, ten months and two weeks, giving within a fraction five eggs a-week.) They were not large, but of excellent flavour; and the 227 eggs exceeded by over ten times the weight of the bird. This breed will not sit. I need scarcely observe that to keep up the breed, their eggs must be placed under other hens.—LEIGHTON.

(To be continued.)

MANAGEMENT OF PARROTS.

MANY persons have read with much interest the notes in your Journal in reply to queries about Parrots. Their owners mean well by them, but the poor birds suffer from the popular ignorance regarding them, and contradictory advice. The most general error is not giving them water, on the supposition that the birds do not find it in their own hot country, but get moisture from fruits. This point you have already settled by a note in your Journal, for which every thirsty Parrot should be greatly obliged. Will you now have the goodness to give some further information?

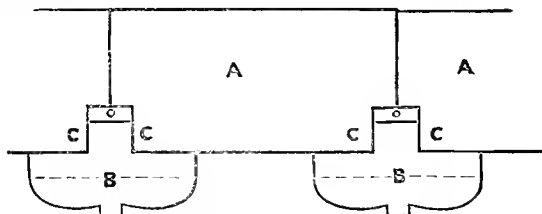
What should the Parrot have in his cage to grind down his bill on? The smooth wires of his cage seem quite insufficient, though he works much with them, and his perch-stick, which is also smooth.

Is it from any preventible cause that the Parrot at times eats his own excrement? May the Parrot be exposed to the full heat of the sun in his cage, when hung out for the air? When moulting the Parrot pulls out his feathers. Should anything be given to him to allay the irritation he appears to feel?—D. H.

[We insert this list of queries in the hope that those who have kept Parrots successfully will favour us by stating fully their mode of management. The thousands of Parrots in Great Britain are for the most part totally mismanaged, and we hope for the sake of those birds, and for their owners' sakes, we shall have many replies.—EDS.]

COMB-BAR HIVES.

CONTEMPLATING the adoption of bar-hives for my apiary, I want, in my own mind, to get rid of the solid crown-board as recommended by "A RENFREWSHIRE BEE-KEEPER;" but I do not like his substitute of grooves in the bars and slides. I am afraid they must be very difficult to work on account of the propolis which my bees use so lavishly wherever they find a crevice.



I have schemed the plan which I would now ask your judgment on; and which is, instead of one crown-board, a series of long narrow boards, or rather bars. The sectional drawing will, I think, make it clear. B Woodbury comb-bars. A Bars instead of a crown-board, or of the slides before alluded to. The plan shows a recess at c, in the under corner of each crown-bar, making a groove when two bars adjoin of a quarter of an inch square. I propose to have my comb-bars made with a ridge to work in the groove thus formed by the junction of two crown-bars; but I think it will be best if, instead of the ridge filling the groove, a space be left as o in the plan. My comb-bars will thus be kept in their places by the crown-bars without any need of screws. Of course, it will be necessary to make the centres of the two ridges of the comb-bars correspond, and to get the crown-bars exactly $1\frac{1}{2}$ inch wide. Or what is the proper width from centre to centre of the combs?

I propose resting the ends of the comb-bars on a ledge within the hive, cutting a piece off flat at the ends for this purpose, represented by the dotted line; but the crown-bars I would carry half an inch over the front and back. It would also be necessary so to adjust them as to rest flush upon the comb-bars. For supering, holes may be made in the crown-bars, or the whole bar may be removed, and two pieces, leaving the middle open, substituted. When resting in working order they would need no fastening more than the propolis of the bees themselves; and if fastening should be at any time needful, it may be accomplished by screwing one or two bars across, the sides of the boxes being made higher than the back and front, and level with the crown-bars when in their place.

Now, I shall feel obliged if you will point out any flaws in my plan. Will the crown-bars warp? How thick must they be? Is it certain whether bees do better in wood boxes or straw hives? Is a "RENFREWSHIRE BEE-KEEPER'S" assertion that, for concentrating the heat in the spring, there is no comparison between an octagon or circular hive and a square hive, the advantage being with the former—is this assertion true equally for southern and northern counties? or is there but little or no perceptible difference in the prosperity of square and round colonies in the south?—A. B. C.

[Your plan is ingenious, but we fear rather too complex for general adoption. The only inconvenience we have ever found in the use of the ordinary crown-board, is completely removed by allowing sufficient space for the bees to pass above the bars. We now allow about $1\frac{1}{2}$ inch from centre to centre of each bar. The Woodbury-bars are intended to rest in the same notches as common ones, so that it is only necessary to remove half-an-inch

of the central rib at each end. The proposed crown-bars will not warp, and should be the same thickness as the sides of the box. As far as our observation extends, bees appear to do equally well in wooden as in straw hives. The assumed concentration of heat in octagonal boxes is doubted by many. There is certainly no perceptible difference in general between the prosperity of bees in hives of either shape.]

SEQUEL TO THE ADVENTURES OF A LIGURIAN QUEEN.

IT is with much regret that I lay before the readers of THE JOURNAL OF HORTICULTURE the following letter, which appears to indicate a disastrous termination to the "Adventures of a Ligurian Queen." I say appears to indicate; for it is by no means certain that the formation, or even the completion, of queen cells, is proof positive of the sovereign's demise.—A DEVONSHIRE BEE-KEEPER.

"My dear Sir,—I hasten to inform you (May 23rd) which I do with much regret, of the failure of my hopes in regard to the first Italian queen, whose "adventures" have been recorded in the pages of THE JOURNAL OF HORTICULTURE. The sequel to those adventures is so far interesting (albeit in other respects most unfortunate) as indicating that no positive rules can be laid down as to how bees will act under given circumstances. Either they must have killed the queen outright, or else have stifled her to death, even after the discovery of the loss of their own queen; for they certainly did discover their loss on the 12th, as witness the "hum," of which I spoke in my former letter. Ever since that day they have been perfectly tranquil, as if all things were in a right state in their hive.

"All doubt as to the fate of the poor Italian queen was removed this morning, when curiosity, and the desire to transfer the bees to a bar-box, led me to drive the whole population, when I discovered four royal cells in close proximity to each other celled in. The piece of comb in which are these cells has been cut out, and placed in a glass over the box which contains the driven bees. The moment the hole communicating with the box was opened, the bees rushed up in frantic joy, and instantly took possession of the glass.

"I have also just examined the old stock from which I drove the swarm last Friday, in preparation for the second Italian queen, which arrived dead,* and saw two royal artificial cells celled in. The bees in this hive being rather few in numbers, I have set the old box (driven this morning) over them. It contained several hundreds, perhaps a thousand, drone and worker cells, containing unhatched bees, besides a few fully-developed bees that would not join the swarm. The box itself weighed about 20 lbs., and contained a good deal of honey.

"Thus most unfortunately ends my first experiment with the Ligurians. I must hope for better luck next time. I only wish I had your queens at the head of my very strong stocks. So far I have suffered nothing by these experiments. The two swarms have taken the place of the stocks which perished in the winter; and the old stocks are full of honey and young bees, with a prospect of healthy young queens.—B. & W."

ON THE SUBSTITUTION OF A STRANGER FOR A NATIVE QUEEN.

THE too-probable failure of so good an apiarian as "B. & W.," in his attempt to substitute a Ligurian for a common queen, is much to be regretted; and a few words on the causes which appear to have led to that failure, as well as the best means of insuring future success, may not be without interest to apiarians.

I cannot learn from the letters of my esteemed correspondent whether he at once placed the Italian queen in communication with her future subjects, from which she should have been separated only by a divider of perforated zinc for the first twenty-four hours. I shall assume, therefore, that this very necessary precaution was not omitted, and can come to no other conclusion than that the unfortunate impatience which led to

the Ligurians being "stirred up with a bit of tarred string," was the sole cause of failure.

Most bee-keepers are aware that bees manifest the greatest anger, shown by an instant protrusion of their stings, on being interfered with in this manner; and I can conceive no more probable cause of a fatal quarrel than such an operation effected by the use of so obnoxious an instrument as tarred string.

Huber's experiments would lead any one to suppose that, after bees had been without a queen for twenty-four hours, they would at once accept any stranger sovereign that might be offered to them. Such, however, is not the case, and it would be extremely hazardous to present a strange queen for their acceptance at the expiration of twenty-four hours, when most probably a number of queen cells would be in course of construction.

There are two periods when bees will generally welcome a strange queen. One is after their own efforts to raise a queen have failed or have been frustrated, and the other is when the stranger is presented to their notice during the confusion incident upon the first discovery of the loss of their own sovereign. To take advantage of the first-named period, it is necessary to remove the native queen about ten days before presenting the stranger. During this time the hive must be twice examined and all queen cells extirpated. In practice, however, I have found it impossible to make sure that no queen cell is overlooked; so that it is more than likely, after all this trouble has been taken, that the new pretender to the throne may find herself face to face on her first introduction with a virgin princess, whose superior activity would, most probably, at once determine the contest in her own favour.

Dismissing, therefore, this mode of proceeding as being well nigh impracticable, there remains only for us to take advantage of the first moment of confusion produced by the discovery of their queen's loss, and this is what I have endeavoured to do in the instructions for uniting Ligurian queens to stocks or swarms, which were republished last week. I do not say that a failure is impossible, even when these instructions are faithfully carried out; but this I can say, that no such failure has, as yet, come to the knowledge of—A DEVONSHIRE BEE-KEEPER.

HOW I BECAME AN OXFORDSHIRE BEE-KEEPER.

(Continued from page 74.)

MY bee-boards are fashioned like the block-boards, out of well-seasoned guarled ash, about 1 inch thick, being 19 inches in diameter one way, and 2 feet—the alighting-lip side—another; half-an-inch is bevelled off around their upper edges, and the alighting-lips are left 5 inches broad for a base, and tapering off to three-inch rounded extremities. The inch-thick boards will allow of planing, in case of future warpings, as they must always offer an even surface for the hives, and also lay close and level upon the block-boards; for, in the event of cavities there, so sure will woodlice, earwigs, &c., congregate. I have some bee-boards formed out of mahogany, they can be depended upon for neither splitting nor warping; and for those who can afford to launch into the expense, doubtless they would prove less costly in the long run. A board I have had in use from the beginning, is made out of three-quarter-inch deals, with two two-inch-broad oak strips let in flush, and transverse across the bottom; it has never warped or given way in the least, and would last ten years longer. Stone or any similar cold substance must be avoided for this purpose. And now I am on the boards, I may as well proclaim my manner of cleaning them for the bees, in the spring time of the year.

In order to prevent counter currents across them during the winter, I never, if I can possibly help it, lift those hives from the boards after September that I intend to keep as stock, in order that the bees may thoroughly glue them to the boards with their propolis before the cold weather arrives, for then they cannot work this substance; and positively all mortar daubings must be execrated. I do not perform the board-cleansing before the middle of March, or even so early, unless the weather is mild and warm; and when these conditions favour, in the middle of a sunshiny day, when the greatest number of the bees are away at work, I proceed as follows:—With a clean spare board, a plant knife, a hard brush, a goose's wing, and a stout wicker-worked bushel measure, 14 inches in diameter at top, and tapering outwards towards its bottom—this I place handy on the walk,

* This is the first of my queens which has died whilst travelling. Judging from the fact that all her attendants survived, and that her own sting was protruded, I have little doubt that she met her death from a thrust (whether accidental or wilful it is of course impossible to determine) from one of her subjects' weapons.—A DEVONSHIRE BEE-KEEPER.

† This "old box" has thus given me two good swarms within the fortnight, which now stand side by side on the top shelf of my apiary.

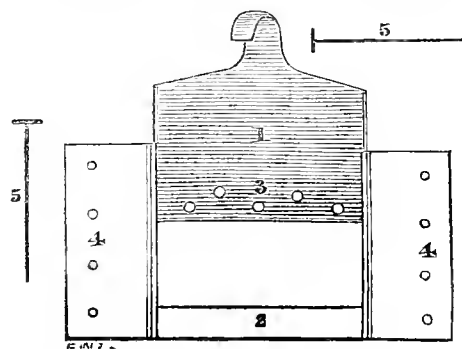
and then press the inward shank and knee of the right leg against the edge of the board, and the back of the hive; lean over and grip the bee-board with the left, and the top front edge of the hive with one's right hand, and with a strong and a loup pull, pull the hive over at once, and place it upside down upon the measure, examine its internal condition, and take quick cognizance of what is perceived to be wrong, in the shape of combs becoming too thickened by age, weakness of inhabitants, mould, moths, or any other adversity for future guidance; then slip over the clean board, meantime whisking out of the way with the wing the bees, from off the edge of the hive to prevent their being crushed; put aside the dirty board from the stand, examine the pedestal at the junction of the ground, and with a few good tugs from right to left, make sure of its being sufficiently sound to bear the bee-hive another year. That ascertained, shift the hive sufficiently on to the edge of the measure, so as to be able to insert the right palm and arm beneath it, whilst with the left palm upon the board, press tightly, and with main strength turn over the hive to its proper position; set it on its stand, and place the pan over it.

From what I have written about the latter protector and the controversy it has caused, I trust my readers will not consider my "pan" to represent the meagre dumpty affair too often seen placed on the tops of hives. Mine are made $11\frac{1}{2}$ inches wide across the bottom, with sloping sides, $7\frac{1}{2}$ inches deep, and measuring 2 feet for their top inside diameter; so that when reversed on the hives, which are 16 inches broad, there remains a good conservatory air-medium between the pans and the tops of hives, which I consider most important, and their slope extends so far over that during the winter time, little more than one-half the hive can be seen. I place the pans, moreover, rather leaning, and their being provided with rims, the drip water is made to cast itself off at the side indents, where their lips are formed; and unless it is very driving, no rain can reach the hives, and no wet can lodge for long on the edges of the bee-boards, or their alighting-lips, on account of the slight incline which is made permanent at the sawing off the tops of the pedestals in the first instance. The insides are glazed at their making, and their outsides I have painted the same colour as the under sides of the stands, and these are the only parts of my bee appendages I allow to undergo that operation. The cock-a-hoop balance of the pans, surmounted with the old bits of sculpture—as wind guarantees—have a nobby appearance I assure you. Proceed now and scrape off the residuum from the removed bee-board with the knife, and polish it off with the hard brush, when it will serve as the clean one for the next hive, and so on; and, my word for it, it will do your very heart good to observe the rejoicings of the bees for this, your provident care—it is a regular romping fowl's game of prisoner's-base—they appear so happy they do not know what to do. This year my anxiety for inspection on account of the late severe winter, and this, my contemplated writing, induced me to take advantage of the 9th inst.—the first warm day of the month—to perform the cleansing operation; and the remarkably dry and healthy exteriors and interiors my hives presented were marvellous, I could have blown away the waste lamina from the bee-boards with a pair of hells. Consecutively, as I turned up the hives, I found the bees congregated centrally, intent upon their household arrangements, and their combs were becoming quite heavy with brood.

On the 20th inst. the weather was very cold and stormy, and as I have 3 lbs. to 4 lbs. of honey left, I shall make it into food, and give it to the bees; not that they absolutely want food, but it will assist our economy, and be of advantage to their brood, for where there is a large family coming on nothing must be allowed to be wasted. I explained at page 186, Vol. XXV., of THE COTTAGE GARDENER, the method of feeding, and the size the feeders are made so as to fit the winter entrances, for which I have also another name—namely, ash-pit doors; and now I mention them, it opens an opportunity for me to explain them away, and to send you a drawing.

I place a portion of cotton wadding at their backs previously to tacking them on to the hives, to prevent the exit of the bees between them and the irregularities of the latter, for the insects will insinuate themselves through a surprisingly small hole. They are made of zinc, 4 inches by 2 inches, with a perforated slide to slip over the bees' entrance early on sunshiny or thawing mornings, when snow is lying upon the ground, for in default of some such contrivance the bright light or warmth tempts on the bees, and the snow lures them to destruction. I take especial care to raise the slides again in the afternoon, as the

inmates have a great repugnance against being placed in the position of Sterne's starling; and although not one should be seen at the closing of the slides, it is amusing to watch their probosces soon after, working through the perforated holes, as much as to say "We can't get out—we want more air!"



WINTER ENTRANCE TO BEE-HIVE.

1. Zinc plate, 4 inches by 2 inches.
2. Bee entrance, $1\frac{1}{2}$ inch by three-eighths of an inch.
3. Slide, with five perforated holes opposing entrance.
4. Holes to admit tacks to secure plate to hive.
5. French-cloth-looking tacks for the above purpose seven-eighths of an inch long.

Now, chiefly as well as for cottagers, I have it before my mind's eye and knowledge, that many gardeners—good sort of people—are requested to undertake the management of a few hives, if not to produce honey for the nursery—and what is more wholesome and palatable for children, or the parlour breakfast table? at least, I beg pardon—for the housekeeper's stores; and whatever I may know, or think that I know, about the principles of air in motion, it may tend, perhaps, to a quicker comprehension of what I am about to say, if we go and sit down on the steps in the stoke-shed, quietly discuss the matter, and take the furnace and ash-pit door for our text. Now, as to whether it is the Killogie, Polmaise, or Kiddean system that my bee-keeping hangs itself upon, no matter; it is very much like one of the three, which is not Polmaise, nor yet Killogie. At any rate, I did not finally adopt the plan without many a good think, or enter the list of apian advisers without well considering the state of my armour either; for most assuredly we are quick to defend our workings, and our ways are endless, though, I believe at heart we bear no ill will to each other—at least, I know I do not. It is understood that bees possess the power to generate heat, more or less, under favourable circumstances as they may need to require it (their respiratory action is nicely touched upon by "A RENFREWSHIRE BEE-KEEPER" at page 202, Vol. XXV., of THE COTTAGE GARDENER), which that furnace has not, neither could it much, however so well supplied with fuel; if we stuffed up the chimney-flue, albeit the ash-pit door is left open; and this is much upon the principle that bees are too commonly allowed to struggle and try to exist. You and I could not sit here so comfortably outside the brickwork, much less inside, under those conditions. Then fancy a hive swaddled up, every flue choked, the interior reeking with steam, damp, cramped, its inmates faintly breathing, and doubtless they would cry out if they could—"We do not *live* here, we only *linger*; we are so cold! Do pray give us a circulation of fresh air: we will soon warm it, and take care of ourselves! Oh! that we had been allowed to choose a hollow tree, or a commodious hole under the roof of a house!"

On one of those bitter cold days last Christmas, my friend, whilst holding converse about our bees, expressed himself somewhat dubious and inquiringly, I thought, concerning the lives of his stocks; so I took him to my apiary, bid him kneel down in the snow, and place his ear close to each hive and listen. The combined surprise on his countenance I likened to those ever-to-be-admired spirits of the waters around the fountain in the tropics at the Crystal Palace; or, if you do not happen to have been fascinated by those nymphs, place a sea-shell to the ear of a child for the first time, watch the mystery of its countenance, and you will have little difficulty in arriving at my meaning. My friend intimated that no time would be lost ere each hive of his underwent the listening test; and if, I answered, you hear not the mellowed voice as of a distant waterfall, you may

depend upon it there is little life there. But you will observe that my hives are 16 inches in diameter, 11 inches deep, straight-sided, of common thickness—about an inch—with well-twisted wattles, firmly bound together with the withs, and of straw throughout, the summer or natural entrances being about 2 inches by three-quarters of an inch, quite flat on the top, having central holes about 3 inches in diameter, over which are placed thinish rounds of plaited straw, slightly secured with wall nails, though sufficiently so as to prevent the egress of the bees. This I call my air-flue; but the bees would stop up a pipe of "X." (page 358, Vol. XXV., of *THE COTTAGE GARDENER*), directly, if it was allowed to come down into the hive, and we should then have juice in plenty, and the wrong sort too. As to the turf over, doubtless it is as good a non-conductor of heat and cold as peat. My hives are after the model of Mr. Payne's, but his are 14 inches by 9 inches only, outside measure: therefore you will perceive mine to be a good-sized oven, and the bars—viz. the combs, reach from the top nearly to the bottom: I say *nearly*, for that is an important particular.

If you adopt the hives that I recommend, you must also adopt for each two pieces of hard-wood sticks, to run completely and centrally through at right angles, otherwise the bees from their own natural instinct, will attach some of the lower parts of the comb to the bee-board for support; so that not only would spring feeding become impeded, but in the event of summer examinations and spring cleanings, when the hive is lifted, smash must go the combs somewhere, and more or less of them remain attached to the bee-board, which would cause a sad difficulty, and future cost of time and store for the bees to repair. I have never found this to happen since the introduction of the sticks. My first large hive, to which I have never applied them, was sadly subject to those attachments in its youth. When I lived near the banks of the Tyne, I practised fly-fishing, and made my own rods; so happening to have it by me, I use hickory and lance-wood for these cross purposes, worked into lengths about three-eighths of an inch in diameter, taking the precaution at their insertion to leave about an inch of each protruding outside the hive, to enable me to twist and pull them out of the way with a pair of pincers previous to cutting out the combs. I find it is customary for bees to commence eating their stores at the extremities, and to retire from the combs inwards. Some years ago I first noticed this peculiarity in a Nutt's pavilion-hive, which was intrusted to my keeping by a lady for several months. I allowed the bees to work in one of its collateral-boxes, and after the honey-gathering season, they conducted themselves as mentioned above; they had nearly consumed the honey in the collateral-box, and retired into the central compartment for winter quarters, when I was requested to send the apparatus, by rail, into Hertfordshire, where it arrived safely with its sweets and living cargo. Now when straw hives are made sufficiently roomy, and the bees are giving out central heat, what a capital medium we provide for the warmed air to circulate between the space there—the comparatively isolated-oven sides of the hive, and the emptied combs—why, 1-inch space there is worth 3 inches in thickness of any outside covering whatever. I ally two swarms, two casts, and two colts—if I can get the latter for nothing—together, to populate each hive (of which more anon); so you see my furnace is a large one to produce heat, more or less according to necessity; and when, from the natural combustion to the bees, the air becomes more sensibly warmed, it circulates more freely, and ascends through the aperture by the straw plating above, provided a fresh supply is being introduced at the ash-pit door below; for it would be about as easy, I suppose, to keep down rarefied air in motion as to stay ignited gunpowder. In short, the fire in the centre—the bees—is fed by a portion of the outer air from the entrance as it goes up splitten between the combs, whilst side streams also go up in the surrounding side chambers, thence to rush out at the aperture into the conservatory to struggle round about and prevent stagnation outside the hive, and then away from beneath the great pan into the open air again, and there you have a description, and the "only secret from first to last" that I know, anent the preservative qualities of my hives; unless indeed it be the significant fact, that the bees remain to me alive and well through this and the last very severe winters, thus more than successfully competing with other common systems.

On the 23rd of March I was obliged to take away the winter entrances, by reason that they did not offer sufficient room for the exit and entry of the bees; they were so busy about the

apricot, crocus, and *Arabis mollis* blossoms. The latter is the best honey-producing plant that I know of from the middle of March to nearly May. It is very hardy, and can be propagated in any out-of-the-way corner for autumn transplanting into beds and borders, to form a nice green surface during the winter. It is most profuse with its clear white bloom, very appropriate for the ribbon fashion, and very interesting for those who like to study the varieties, and to hear the "murmurings of innumerable bees."—UPWARDS AND ONWARDS.
(To be continued.)

MANAGEMENT OF PIGS.

THE fame of the little village of Brandeston, in Suffolk, rests, we believe, solely and recently upon the very superior excellence of the Pigs bred there by a very intelligent farmer of the name of Stearn. That his fame is well-merited appears from many facts, but from none more decidedly than from his being requested by his brother agriculturists to read them a lecture upon the management of swine. This he did, as follows, at a meeting of the Framlingham Farmer's Club. It must not be supposed that Mr. Stearn's Pigs came by a string tied to their leg, or covered over with a net in a dealer's cart. The pigs would scorn such treatment. A short time before the hour for the discussion there was a great commotion in the town. A procession of cars tastefully trimmed with flags, evergreens, and flowers passed through, the horses mounted by postillions in scarlet jackets and blue caps with scarlet tassels. The procession was received with cheers and much popular ovation. The occupants of these triumphant carriages were Mr. Stearn's Pigs, come to take their part in the discussion:—

I have had experience in management of Pigs a good many years, as many in this room are aware. I exhibited a sow and Pigs at the Framlingham Show as long back as 1847, and gained the prize; they were then considered superior to anything that had been seen in this neighbourhood, and many said I should never produce another lot so good. But we keep progressing, for at the Framlingham Show last year, I exceeded the former very much in weight at the same age. The same remark was then made again, but the two lots I showed at Birmingham and Smithfield were heavier still at the age; and now I suppose I may make up my mind I have got to my furthest on that point, as I have raised between 14 stone or 15 stone, 14 lbs. to the stone, at the age of between five and six months, dead weight; and between 8 stone and 9 stone, 14 lbs. to the stone, live weight, at between twelve and thirteen weeks old; and I think I have now, in the breeding of that animal, arrived as nearly at perfection as I could reasonably hope. But it is difficult to know where to stop, for even improvement has a limit, and crossing when carried beyond a certain point will generally end in deterioration. I think, however, to cross occasionally as far distant as possible is beneficial. To give an extended outline or description of the original species, or of the various breeds and innumerable crosses and varieties of Pigs, would occupy too much time: therefore I shall just describe our own Suffolk Pig. I find that the profit or loss of the Pig rests on the quality of the stock, and it must be kept in mind for what purpose the animal is intended, whether for bacon or pork. If for bacon flitches, you must choose a large kind, such as Berkshire; but if for pork, the small kind is most desirable, such as the Suffolk or Leicester, which are very similar animals; and every judicious breeder will have to take into consideration many circumstances in choosing a breed of Pigs. The intent and purpose of breeding is profit. To insure the greatest amount of profit, it would be well to consider the position in life of the population resident near one's own locality; his proximity to a good market, and a kind and quality of meat necessary for its supply. There is a Pig called the Improved Black Suffolk, which many prefer to white, thinking they are more hardy; but I have fairly tested the thing of late (which I suppose most present have been eye-witness to), and proved that the white will exceed the black as far as early maturity is concerned, and of course early maturity is where the profit is gained; and I find the better the quality of breed, the more lucrative it becomes, much less food being required.

Now for our White Suffolk breed. In choosing the sow and boar the chief points are—a smallish head, with short snout, wide chaps, the ears rather small and thin, ends sharp, pendulous and pointing a little forward, broad and deep chest, round ribs,

long in the body and short in the leg, the haunch or thigh dropped almost to the hock, back broad, straight or slightly curved, shoulders and hams thick, and the neck to rise well behind the ears, small bones in proportion to the flesh, the hair to be long, thin, and silky, tail small and curled. Strict attention to these points in selection cannot fail of perpetuating good stock. Here I must add my surprise how careless breeders are in selecting the boar for their sows. If there happens to be a good animal within a short distance, for the going to which half-a-crown is charged, they will often send double the distance to a thoroughly bad-bred ugly brute for the sake of the gain of a shilling. Whilst this apparently paltry gain is so much looked after, improvement is out of the question. As to the time for breeding, the sow should be from ten to twelve months old, and the boar from eight to twelve months. I, however, find that very few people will keep them so long, but breed them much earlier, which very often prevents their growing to the proper size, or acquiring sufficient strength for breeding. I think good-sized sows are best for breeding, and more likely to have a good number of Pigs. Great care should be taken not to have one with less than twelve paps, for it is observed each Pig selects a teat for itself. I consider twelve good Pigs to be sufficient for any sow to bring up. The sow I exhibited at Framlingham and Canterbury last summer, has brought up fifty-one Pigs in four litters, without losing one. As far as my experience goes, the time of gestation averages about a hundred and thirteen days, or sixteen weeks and one day. Two good litters in a year are all we ought to expect. When a sow is in pig, she ought to have liberty and plenty of exercise. The boars kept for stock should be confined in a shed with a roomy yard; if allowed to roam about, you are likely to get wrong in your breed.

In managing the sow at the time of farrowing, my practice is as follows:—To have a man with her to attend her; for it is absurd to have all the trouble and expense of keeping a sow, then, at the most particular time to leave her alone to take her chance. In my idea, there is not sufficient attention paid to the construction of piggeries; I have seldom seen one which I did not consider too small, except perhaps just for fat Pigs, which, of course, do not so much signify, for the less a Pig put up for fattening moves the better. But the farrowing pen ought to be large, to allow the sow plenty of room, and likewise to admit of rails being placed round the sides, so fixed as to prevent the sow lying on the young ones. These rails should be made to shift according to the sow, I think in height from 8 inches to 12 inches, and extend out from the wall about 9 inches, leaving the supports carried up sloping from the inside, instead of straight up from the floor; then when the sow lies down, there will be no likelihood of her squeezing the Pigs, as there is plenty of space left for them to pass between her and the wall, for nine times out of ten that is where the mischief is done, as sows invariably like to lean against something when they lie down. I have recently had a hundred Pigs, without losing one from being crushed. Each place ought to be, at least, from 8 feet to 10 feet square, and the best floor, I consider, is asphalt—no damp or scent can rise from that. I tried boards, bricks, and almost everything in the way of floors. Most persons would say boards are best, but I think I can convince you to the contrary. If you will consider, for only one minute, they cannot be healthy; for if the boards are placed close, of course the moisture will stand, and the boards become saturated: and if a space is left, the refuse litter will go between, so it will become one mass of putrid matter underneath, quite level with the floor, whatever the depth may be; for what passes through will absorb the urine, and is likely to bring on many diseases. But I think, it is well, in the cold weather, to lay down a false lattice floor on the asphalt, so it can be taken up once a-week, and everything swept from under. For two or three weeks, when the Pigs are very young, I have the beds attended to and fresh litter every morning, for I find the cleaner the place is kept the better the Pigs thrive. The floor being washed once or twice a-week, everything runs off, and the asphalt dries in a very short time. There is another great advantage: it does not take more than two-thirds the straw it requires for any other floor; for the moisture appears to run under the litter without wetting it so much, as it is laid a little on the slope; what is taken from the inside serves as litter for the pounds outside, which ought to be paved in some way to prevent the Pigs from rooting. By following this plan, the manure is made very regular and good. A tank should be made just outside, to receive the drainage from the pounds; the building to be troughed to take off the rain water, to prevent the

manure being washed. The pens ought to be so constructed as to be closed up in cold weather, and well ventilated in warm.

At the time of farrowing I allow a very small quantity of litter cut short, and have a hamper placed in the pen with a little straw at the bottom, and also an old blauket. I put a slip or partition, about 2½ feet high, across the pen to prevent the sow getting to the hamper; as the Pigs come forth, put them into it, and cover them up, until the sow had done farrowing, after which I put them to her and let them suck. When done, put them back in a hamper, give the sow a little warm milk and bran; and whilst she is eating this, have the bed attended to, by removing all the wet straw, &c. Add a little fresh litter cut short; then when the sow lies down, let the Pigs go to her again. By pursuing this plan there is very little danger of losing them, for I believe one-third are lost for the want of proper attention. I always give the man sixpence per head for all the Pigs he can bring up to a fortnight old. I find this much the cheapest plan, for then there is no fear but he will see to them properly, and attend to them in the first instance, as well in the night as the day.

How often do we hear people complain of the sow eating her own young: therefore steps ought to be taken to prevent her doing so; for when once a sow does that, she is very little use for breeding purposes. If you allow me, I will explain what I have found to be the cause. In some litters the side teeth are much longer and sharper than in others; when this is the case, and the Pigs begin to suck, they bite and scratch the paps, and punish and irritate the sow to such a degree that it brings on inflammation, and the sow becomes mad with rage, she throws some one way and some another. At last she bites them, and if she once draws blood, she will begin to eat them. Now, the way to prevent this:—When the Pigs are a few hours old, I have them taken away in a hamper, so the sow cannot hear them, and nip those teeth out with a pair of pincers. I should have lost a lot of thirteen some time since if I had not pursued this plan, for the sow was as near mad as possible, she threw the Pigs all over the place, and I had great difficulty in taking them away, for she would not allow any one to approach her. As soon as I had drawn the teeth, and put the Pigs back, she was as kind to them as possible, and perfectly docile.

I think about eight weeks old is a good time for weaning the Pigs, and I like to have them operated upon a short time previous. As far as the feeding of my Pigs is concerned, it appears the public know more about it than I do myself. Some say I give them sugared milk; some, when they think my back is turned, put their hand into the troughs and taste the food, and say they are sure it is phisic; others have stolen some of the food to have it analysed. Now I will try and explain how I feed. I begin to feed the young Pigs at five or six days old, with warm milk, mixed with a very little fine sharps, and a small quantity of white maize, out of troughs like some I will show you presently. For the first few weeks after being weaned, I have the boy feed them very often, but give them a very little food at a time, so they will clear the troughs out. In the winter I feed all with warm food, but not in the summer. I give them a great variety of meal, such as wheat, maize, barley, oats, and whatever is most convenient to mix together. I just wet it with cold water, and then scald it with boiling water, and sprinkle it with salt; between meals, I give them whole maize, and mangold wurtzel or swedes cut small; and once or twice a-day a little coal, but not too much, as it will be likely to do them harm. I allow them plenty of clean water, and there is one point I am very particular about, not to give them any more food than they will clear up at a time.

When Pigs are put up for fattening, it will be found very beneficial to wash them, at least once a-week; this is quickly done by experienced hands, and will amply repay any one for the trouble. I also like to have them very often brushed. If you will only try the experiment between this and the common mode of treatment, you will be surprised at the difference. I have no doubt that many will say, "What a trouble!" But how can we succeed in anything without trouble? I am certain the cottagers would find their Pigs fatten a good deal faster if they would wash and brush them, and feed them with warm food, instead of giving it to them all like ice. This would be a very easy thing, for most can keep a kettle by the side of the fire all day; they would find themselves well paid for the little extra trouble it might be.

Store Pigs ought to have their liberty as far as convenient, such as to range in large yards in winter, and the run of a piece of pasture in the summer. They should also be fed two or three

times a-day. Good-bred and well-fed store Pigs will always consume the refuse from the farm and dairy, when a bad-bred one will refuse. I have never known mine refuse anything in the way of pig food yet that was offered them, not even the prize animals. In my opinion the generality of pig-troughs are very badly constructed, so as to waste a great deal of the food, and soil it, by allowing the Pigs to get their fore feet in. I have tried a great many different sorts, and find those that I have brought here to-night to be the best kind I have seen, to prevent both spoiling and soiling; and they are called the light iron Norfolk troughs. They cannot be too flat according to the size of the Pigs to prevent their getting deformed. Their shape is very often injured through not using a suitable trough. I have a great many different sizes, and use them to suit the animal. And now, gentlemen, if any of you would like to see my places and animals at any time, I shall be happy to show them to you; but I can't say I wish to see you all at one time. I have had as many as sixty and seventy in a day, and that is rather too much of a good thing. (Prolonged applause.)

Some extraordinary specimens of Mr. Stearn's success in the breeding and rearing of Pigs were then brought into the room, engaged the attention of the meeting for more than half an hour. The first animal produced was a breeding sow belonging to a neighbour of Mr. Stearn, which was produced as a contrast to his own. When this animal was placed side by side with one of Mr. Stearn's, the contrast produced a great deal of merriment; but we were informed by those competent to speak on the subject, that the unhappy Pig which was produced as a foil on this occasion was not an unfair sample of the run of young breeding sows. Its age was about nine months, as was also that of one of Mr. Stearn's placed beside it, the former weighed 4 stone, the latter about 16 stone or 17 stone. Mr. Stearn also showed three white Suffolk sows in pig, of remarkable weight and proportions. The last specimen shown was a young boar from the Framlingham and Canterbury prize sow. Mr. Stearn also showed one of the light Norfolk troughs he uses, along the top of which he had added a bar to prevent the Pigs from attempting to leap over, in doing which he said they would often break their legs. He also produced a specimen of the wedge-shaped lattice he uses, which has the effect of fending the sow from the wall when she lies down, and so leaves room for the young to escape uncrushed. These contrivances were simple and excellent, and served, no less than the wonderful specimens of the Pig tribe which he exhibited, to convey an idea of his great care, perseverance, and skill in the work in which he takes so much delight.

VARIETIES.

VEGETABLE TALLOW.—The Agricultural Bureau of the Patent Office has received specimens of vegetable tallow known to botanists as *Myristica sebifera*. It comes from a nut about the size of a nutmeg, full of meat, which, being melted, becomes a yellowish tallow, excellent for candles. The plant is a native of Central and South America, and naturally attains a height of 10 feet or 12 feet; it carries herbaceous flowers from July to September, and makes so profuse a secretion of oily matter, that this may be readily obtained from it in the form of fat by immersing it in boiling water. H. L. Clarke, Esq., U. S. Minister at Guatemala, writes that he has no doubt that this article might be collected and exported at considerable profit. It grows in immense quantities in the southern departments, and in Verapaz. It is susceptible of such high purification as to resemble the finest sperm, is solid, and quite as transparent. A sample of this production, in the nut and in the tallow, is now among the numerous collections at the Patent Office. The cultivation of it from the seed will be tried at the Horticultural Garden.—(*Scientific American*.)

PRODUCTIONS OF EASTERN AFRICA.—The necessities of life are cheap in Enarea; for a piece of salt, worth not more than a groat, you may buy from 60 lbs. to 70 lbs. of coffee berries; and at the same price three great pitchers of honey, or several sacks of wheat, are procurable. Pieces of salt are however, rare. Like the Abyssinians, the Enareans drink beer and mead. The coffee tree grows wild in the woods to the height of from 12 feet to 14 feet, and its wood is used for fuel in the cold parts of the country; and in Enarea there is said to be more coffee than in Kaffa. What a pity that there should be so much difficulty in communicating with countries like these, from which so valuable an article of commerce could be procured! What

results would arise if the Gojob were found to be navigable, or if the river Sobat should conduct to these coffee countries! And how much more important still would this be for the extension of Christianity in Inner Africa! The traders from Gondar carry to Enarea the following articles of commerce:—pieces of salt, glass beads of various colours and sizes, coloured stuffs, especially blue calico; copper, knives, scissors, nails, weapons, cooking-ware, black pepper, &c.; and receive in exchange coffee, civet, slaves, horses, and the skins of lions and leopards, especially of the black leopard (*Gessela*). Civet is dear, even in Enarea, as it is considered a good medicine for the headache and other maladies, and is procured from the civet cat, which is as large as a young dog. This cat lives in the woods, where it is caught in traps, and is then kept in cages in front of which a fire is burnt daily to make it perspire. It has in its hinder parts a little sack or bladder in which the precious material collects, and this is emptied with a spoon from time to time and put into a horn, which, with its valuable contents is sold to the traders. The Galla horses are very small, but beautiful in colour, and extremely swift, though horse-shoes are unknown. The Gallas in the neighbourhood of Abessinia are tillers of the soil as well as breeders of cattle, while their brethren under the equator are merely pastoral, and lead a nomadic life. Those of the equator, moreover, have no horses, and are altogether far behind the others, presenting the genuine type of the original Gallas, especially in their religious notions. Where the Gallas follow agriculture, the men plough, sow, and reap, while the women look after the oxen, cows, horses, sheep, and goats, and take care of the house and its concerns. Rye, wheat, barley, and Indian corn, grow in such great abundance in the Galla countries, that for a dollar you may buy almost more barley or rye than a camel can manage to carry.—(*Krapf's Travels in Eastern Africa*.)

OUR LETTER BOX.

WARTS (D. K. B.).—We have cured hundreds by touching the tops of them with nitric acid. This turns them yellow. After two or three days the stained part is easily scraped off. Then touch them again with the nitric acid, and continue the treatment till the warts disappear. Do not apply the nitric acid to any wart that is tender, or to one that has recently bled.

MANAGEMENT OF SPANISH FOWLS (Adelaide B.).—Spanish fowls do not require different treatment from others, and we will, therefore, gladly give you the information you require, by telling you that which we believe to be fit and proper for all fowls. The quantity of food given by hand must always be regulated by that which is to be had naturally, and there is a very easy method of ascertaining the exact amount, which is, by feeding only so long as the fowls show they want it. Take ground oats, slake them with water, and when they have reached the consistence that they will retain the form given to them, but break on falling, then throw small pieces, size of small nuts, on the ground. As long as the fowls run after and eat these, continue to feed; when they cease to do so, leave off feeding. You may be satisfied they will eat as long as it is necessary for them. There is not only health and condition, but there is great economy in this system. All yards are badly conducted where food is to be seen lying about—it is fatal to health and profit. Ground food is better and more economical than whole corn. The noise like a cough emitted by the hen is probably caused by a slight cold, or it may arise from something lodged in the throat. Spanish are not subject to roup, and, therefore, this symptom has not the importance it has in other breeds. If it continues, separate the bird from the others, and use a stimulating diet, such as bread and beer, or wine. Buy "The Poultry Book for the Many," published at our office.

BUTTER, STRONG-SMELLING (A Subscriber).—Washing butter in a water in which a little chloride of potash has been dissolved, and then in water only, will often remove the flavour arising from the cows eating weeds.

FUR OF ANGORA RABBITS (—).—A pure-bred Angora Rabbit should show length of fur from the first, but they do not arrive at perfection till about six or eight months old.

WEIGHT OF PRIZE DOE (Orion).—You had better communicate with Mr. Charles Sellen, as we do not know the weight of the doe that took the prize.

BEES BY POST.—Mr. Wm. Eaglesham, of Stewarton, will oblige by stating if the Ligurian workers sent to him by Mr. Woodbury were alive when they reached their destination.

LONDON MARKETS.—JUNE 3.

POULTRY.

We are gradually getting into a better state of things; the supply is increasing, and with it the trade assumes a healthier character. The supply will soon be equal to the demand.

Each—s. d.	s. d.	Each—s. d.	s. d.
Large Fowls.....	6 0 to 6 6	Guinea Fowls.....	0 0 to 0 0
Smaller Fowls.....	4 0 „ 4 6	Leverets.....	3 0 „ 4 0
Chickens.....	2 6 „ 3 0	Pigeons.....	0 7 „ 0 8
Ducklings.....	2 6 „ 3 0	Rabbits.....	1 4 „ 1 5
Goslings.....	5 6 „ 6 0	Wild.....	0 8 „ 0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	JUNE 11—17, 1861.	WEATHER NEAR LONDON IN 1860.				Sun Rises.		Sun Sets.		Moon Rises and Sets.		Moon's Age.		Clock after Sun.		Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	m.	h.	m.	h.	m.	l.			m.	s.	
11	Tu	St. BARNABAS.	29.934—29.810	65—49	S.W.	.06	45	af 3	11	af 8	25	10	3		0	42	162
12	W	Buddlen globosa.	29.575—29.423	61—49	S.W.	.40	45	3	11	8	48	10	4		0	30	163
13	Th	Phloxes.	29.607—29.536	64—41	S.W.		44	3	15	8	6	11	5		0	17	164
14	F	Ononis.	29.694—29.686	63—34	S.W.	.02	44	3	16	8	25	11	6		0	5	165
15	S	Amsonia.	29.681—29.623	62—45	S.W.	.07	44	3	16	8	42	11	7		0	bf. 8	166
16	SUN	3 SUNDAY AFTER TRINITY.	29.640—29.579	65—49	E.	.28	44	3	17	8	0	12	8		0	21	167
17	M	Thalictrum.	29.577—29.512	63—43	N.	.54	44	3	17	8	morn.		9		0	34	168

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 72.2° and 49° respectively. The greatest heat, 97°, occurred on the 16th in 1858; and the lowest cold, 30°, on the 15th in 1850. During the period 140 days were fine, and on 98 rain fell.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 172.)

MECHANICAL WORK (Continued).



TURNING again to our mechanical descriptions for arranging flowers, flatness, it must be remembered, is a great secret of success, so that in a vase or group the curve should really be very slight indeed, and the flowers carefully kept down to the proper level. Having provided the frame, the next thing is the preparation of the flowers. If they are for a dish or vase, and if this dish or vase is opaque and can be filled with wet sand, nothing else answers anything like so well. If water must be used, a few large pieces of charcoal are very good preservatives from its being disagreeable, and this is far better than charcoal dust—the latter causing so much dirt and extra trouble. The lumps may be employed for an indefinite length of time, and can be washed whenever

needed without inconvenience.

If sand is used it should, between each using, be thrown into a heap on a tray in the sunshine, to dry and sweeten, and then it should be sifted.

The dish being filled with a heap of sand, fitting under the frame—or a heap of sand would do quite well without a frame at all—the flowers will need no preparation beyond that of cutting off all the foliage up to the point which is to be above the frame or sand, and shortening, if necessary, parts of stalks which are too long.

If the bouquet is for the hand the flowers will, many of them, need mounting—that is to say fastening upon longer stems, which is a separate branch of our little art, and will be treated of separately another day. In this case also, the leaves of all will require removing till they are only left where they grow above the wire level. The frame should now be filled up with green leaves, this having the effect of preserving the flowers longer, and of preventing bareness when they do drop off.

Scarlet Geranium leaves are amongst the very best; but all Geranium leaves are good for this purpose, unless their scent should sometimes render them unpleasant. The Fair Helen, and, I think, the common Oak-leaved are very unpleasant to most people, having such a very strong and unfresh smell. The Ivy-leaved Geraniums, also, though at the first moment one hardly observes it, quite spoil any bouquet by their sickliness when torn or gathered. Of the Spice-scented Geraniums there is one

very small and cut-up-leaved kind with a delightful and very delicate perfume like lemons, which is amongst the most desirable. Myrtle is one of the best kinds of foliage to put near the edge, as even the slight pressure from a touch so much brings out its fragrance. Sweetbriar and sweet Verbena (or Lemon plant) both so delightful, are apt to look disfiguringly untidy; and they are, therefore, far the best placed just underneath the frame, where they are reduced to the compulsory modesty of wasting unseen their sweetness, though not, we hope, "upon the desert air." For myself, I far prefer to any other a thick coating arranged in regular rings of nice, crisp, velvety Geranium leaves, or of other evergreens, and they are none the worse for dipping and agitating under water, as then the foliage is apt to retain some moisture. Young green shoots of other shrubs and plants are always bad, however, as their flagging so soon gives a faded look to all.

For arranging the foliage a long white piece of Berlin wool should be tied to the wire stick, and each separate leaf, if too short to be bound to the centre stalk-wire, should be caught in by that wool. The coat of network formed by the crossing threads of wool causes no harm at all, or rather is useful than otherwise as retaining moisture.

A little trouble and observation are necessary here, as in everything else that is worth doing. Some leaves will hardly ever fall from their own stems: while others, like Begonias, which are so very beautiful, are by no means unapt to drop away entirely, much to the injury of the place they leave. I always, therefore, think it safest to fasten, for instance, the Begonia footstalks separately: a small piece of the thin green flower-wire, to be bought at all wax-flower makers, answering well for keeping them all safe.

It is a vexed question whether flowers arrange better when the arrangement is commenced from within or from without. I believe for dishes and vases there is no doubt that beginning from the outside and working inwards is the best plan, laying a frill of leaves at the edge at first, arranging first, as just described, all the leaves required for the lining. But for flowers for carrying in the hand I think the central commencement is best: it is almost impossible otherwise to secure the stalks sufficiently firmly to keep them in their places.

For these, therefore, beginning at the central flower or green, it is better generally to carry the wool separately round each separate flower as it is wound on, going straight round the bouquet; and here a little knack is wanted to turn it evenly round and to keep up the proper level.

In mixed arrangements, of course, there is a constant exercise of one's own taste, and of the correctness of one's eye for colour; but I think there are few cases where it is not safer to begin by excluding from the basket all the flowers which common sense assures us never, under any circumstances, can really harmonise. When we are actually arranging we are not fair judges—because a very lovely pink flower is so pretty; and what

harm can it do to put in that charming Rose? But when the scarlets begin to gather thickly we sometimes regret that we were not more difficult to be tempted. In that case it still is possible to correct the mistake by cutting the flower off short, and forcing a mounted one down on a piece of stick; but still, as such tempting flowers are generally the prettiest, it is a pity, and we wish they were once more back upon the tree.

I need not go on, however, writing of these arrangements now, as those following apply also to them, and we have to give such minute directions for them in the designs so often. I will only add, therefore, that it is always necessary to bear in mind what follows after as well as what goes before in respect of colours.

For the vases, &c., when arranging the flowers in them, it is very essential, if the flowers are large, that no two flowers, or sprays of foliage, should be exactly over each other's heads, so as to give the slightest appearance of streakiness or of formal lines. A circle having been formed all round the outer edge, whether of different colours or of a single colour, the flowers or leaves should be carefully arranged in the second row, so as to come between each two rather than over any. The number, therefore, of the first row should be uneven; and afterwards, if the flowers are large, between every two others may in some rows be sufficient for placing the succeeding flower; the length of each row, of course, shortening so materially as it approaches towards the middle.

Drooping flowers have a very pretty effect, and they will often serve to break the formality of lines like these.

No Fuchsia should, however, ever be used in bouquets to be carried. The flowers drop so readily, and are so invariably crushed if drooping; yet, if prevented from hanging in their natural most graceful position, they look most painfully out of place and keeping.

Heliotrope should rarely be used, because it turns black so soon. Nemophila never, for its flowers, like the Fuchsia, speedily tumble off.

Chinese Honeysuckle is charming for breaking with its foliage the formal rows. So is the pretty Ribbon and Feather Grass. So are Ferns especially, and evergreen Rose leaves also. Nor must I omit little sprays of Clematis; nor those of Asparagus, nor even the small leaves of the common Carrot! Few botanists even recognise by their eye the foliage of these two kitchen-garden plants when introduced in bouquets.

VASE DESIGN.

I will now give a few hints for vases of Verbenas, which may be made very brilliant, though in this case it should be a pattern device, the flowers themselves not being of a very graceful outline. Useful flowers they are, for from June to November any garden can be well supplied with them. Heavy rains, indeed, do sadly dash their brightness, but an awning or a few bell-glasses can always preserve many blooms in beauty.

I think for Verbenas a rather stiff arrangement is almost inevitable. They may be divided into points. A white ground looks very well, with the encircling points shaded from crimson into the very palest pink, and then with a centre again all shaded down at the edge to the very faintest blush.

Some persons make points of varying shades, as if, for instance, there are sixteen, they would have the first and ninth of the darkest possible tinge; the second, eighth, tenth, and sixteenth the next darkest; the third, seventh, eleventh, and fifteenth the next; the fourth, sixth, twelfth, and fourteenth the lightest except one; and, lastly, the fifth and the thirteenth the very lightest possible.

The flowers are in all these filled as closely as possible into the frame of card, and are even mowed off—I cannot find a better word—with a sharp knife or scissors up to the exact edge thus indicated.

There may be a thin line all round of white, and a very dark purple or very pale mauve ground, or there

may be a white ground only, intervening between the inward-pointing edge and the centre similarly arranged with the same number of points pointing exactly to, or in between, the others.

The green for these Verbenas is difficult to select. I think that Geranium leaves do as well as any, and sometimes, perhaps, an edging of Geranium foliage coming a little way over the edge might have just underneath it a row of drooping Fuchsias, harmonising in colour with the Verbenas, and at the same time giving in some degree the grace of form they want.

In this case the lighter Fuchsias should correspond with the darker points, and the darker Fuchsias with the light Verbenas. The shades not being likely to exactly match, this reversal is far preferable to having the contrast brought more prominently forward.

The Fuchsias and Verbenas that are to be used by candlelight should always be previously *tried* in that light. Sometimes the white Fuchsias look so very dead, and always doing so if there is the faintest tinge of green about their petals, and the Verbenas sometimes appear extraordinarily dull; as the purple flowers look slaty or nearly black, while the crimson flowers take a deeply purple hue.

The pale mauve, too, varies much: but when the exact shade which retains its proper delicate appearance can be found out, it is a very pretty and very soft-looking ground to what may be made an extremely brilliant and tasteful group.—E.

(To be continued.)

THE OPENING OF THE ROYAL HORTICULTURAL SOCIETY'S GARDEN AT SOUTH KENSINGTON.

ON Wednesday last was exhibited one of those grand spectacles which this country alone can produce. It was an event in the history of gardening and of the Horticultural Society, which will be long remembered by those who witnessed it, and which will form a red-letter day in every future gardening calendar. Her Majesty, accompanied by the Prince Consort and the Princess Alice, honoured the Garden with a private inspection early in the day; and among the early visitors we observed, after the doors were opened, Queen Amelia, the Duc and Duchesse de Nemours and suite. All the Members of the Houses of Lords and Commons received cards of invitation from the Council; and to judge from the well-known faces one met at every turn, certainly three-fourths must have availed themselves of this courtesy, and, as a matter of course, the ladies of the Members of both Houses were present also. Shortly after four o'clock, His Royal Highness the Prince Consort, President of the Society, accompanied by His Royal Highness the Prince of Wales, Her Royal Highness the Princess Alice, Her Royal Highness the Princess Helena, Her Royal Highness the Princess Louisa, His Royal Highness the Prince Arthur, Her Royal Highness the Princess Mary, His Royal Highness the Duke of Cambridge, His Royal Highness the Count de Flandres, His Royal Highness Prince Louis of Hesse, On arriving at the grand entrance they were received by the Vice-Presidents and the Council, and the Royal Commissioners of the Great Exhibition. In the great meeting-hall the Fruit and Floral Committees were assembled along with the other Committees afterwards mentioned. About half-past four o'clock a procession was formed, and, leaving the great hall, marched the whole length of the Garden to the centre entrance of the grand conservatory, the ground being kept by the 1st Middlesex Engineer corps. On issuing from the great hall into the grounds, the band played "God Save the Queen," and during this the Royal party grouped themselves on the arcade steps, while a photograph was taken of the whole party with the utmost success. This done, the procession moved forward in the following order:—

Foremen of Gardeners.

Mr. William Dennis, Mr. John Gubbins,
Mr. William White, Mr. Jessie Eyles, Mr. Arthur Bick.

Foremen of Works.

Mr. Wilkinson, Mr. Bone (Bricklayers), Mr. Cross, Mr. Forbes (Masons),
Mr. Muspratt (Carpenter), Mr. Hindley (Iron), Mr. Rodford (Plasterer),
Mr. John Clark (Navigator),
Mr. C. F. Harrison, General Superintendent.

Clerks of the Works, Draftsmen, &c.

Mr. Scott, Mr. Townsend, Mr. Grover,
Mr. Snell, Mr. Liddell, Mr. Wakeford, Mr. Godfrey Sykes,
Mr. Taylor.

Contractors.

Mr. Blanchard, Messrs. Forrest & Sons, Messrs. Minton.
Messrs. Easton & Amos, Mr. Weeks, Messrs. Anstin & Sealey.

Assistant Secretary.

Mr. Andrew Murray, F.L.S.

Superintendent of Garden.

Mr. Eyles.

Auditors.

Mr. Jonathan Clark, Mr. Edward Rosher, Mr. George Paul.

Members of the Floral Committee.

Mr. Thomas Moore, F.L.S., *Secretary.*

Mr. William Barnes, Mr. Donald Beaton, Mr. W. B. Booth, Dr. Bashell,
Mr. John Cook, Mr. J. Cuthbert, the Rev. H. H. Donbrain, Mr. John Fraser,
Mr. Richard Headley, Mr. A. Henderson, Mr. W. Holmes, the Rev. D. R. Hole,
Mr. James Ivory, Mr. J. Keynes, Mr. F. R. Kinghorn, Mr. Charles Lee,
Mr. M. T. Masters, Mr. Robert Parker, Mr. A. Parsons, Mr. William Paul,
Mr. John Salter, Dr. Sankey, Mr. George Smith, Mr. J. Standish,
Mr. Charles Turner, Mr. Harry J. Veitch, Mr. R. Warner.

Mr. James Bateman, *Vice-Chairman.* The Rev. J. Dix, *Vice-Chairman.*

Members of the Fruit Committee.

Mr. Robert Hogg, LL.D., F.L.S., *Secretary.*

Mr. H. Bailey, Mr. H. G. Bohn, Mr. M. Busby, Hon. and Rev. F. Curzon,
Mr. D. Cunningham, Mr. F. Dancer, Mr. W. Hill, Mr. T. Ingram,
Mr. J. Jessop, Mr. S. Mart, Mr. H. Meyers, Mr. W. Myatt,
Mr. John Newton, Mr. Joseph Newton, Mr. W. J. Nutting, Mr. Robert Osborn,
Mr. John Peel, Mr. A. Scrutton, Mr. J. Spencer, Mr. C. W. Strickland,
Mr. Thomas Taylor, Mr. G. Tillyard, Mr. Robert Thompson, Mr. J. B. Whiting,
Mr. F. J. Graham, *Vice-Chairman.* Mr. Thomas Rivers, *Vice-Chairman.*

Members of the Implement Committee.

Sir Joseph Paxton, M.P.; Mr. Edward Easton, Mr. B. T. Brandreth Gibbs,
Colonel Challoner.

Members of the Works Committee, &c.

Mr. John Kelk.

Mr. Sidney Smirke, R.A.; Mr. W. A. Nesfield, Mr. H. A. Hunt,
Mr. Henry Cole, C.B.; Capt. Fowke, R.E.; Mr. R. Redgrave, R.A.

Members of the Fine Arts Committee.

Mr. Richard Westmacott, R.A., Sir Conds Lindsay, Bart.,
Lord Llanover, Earl Somers, Earl Gifford.

Her Majesty's Commissioners for the Exhibition of 1851.

Mr. E. A. Bowring, *Secretary.*

Mr. H. Thring, Mr. Leonard Horner, P.G.S., Mr. T. Field Gibson,
Mr. T. Fairbairn, Mr. Cobden, M.P., Mr. Bidder, P.I.C.E., Mr. Bazley, M.P.,
Mr. T. Baring, M.P., Sir R. I. Murchison, Sir C. Lyell, Sir C. L. Eastlake, P.E.A.,
Sir S. Morton Peto, M.P., Bart., Sir Alexander Spearman, Bart.,
The Right Hon. Robert Lowe, M.P., the Right Hon. W. E. Gladstone, M.P.,
The Rt. Hon. T. Milner Gibson, M.P., the Rt. Hon. B. Disraeli, M.P.,
The Rt. Hon. W. F. Cowper, M.P., the Rt. Hon. Sir G. C. Lewis, M.P.,
Lord Taunton, Lord Overstone.

Viscount Palmerston, K.G., M.P., the Earl of Derby, K.G.

The Marquis of Chandos, the Duke of Buccleuch, K.G., Earl Granville, K.G.

Council of the Royal Horticultural Society.

Mr. John Lee, Mr. Edmonds, Mr. Wrench, Mr. James Veitch,
Mr. S. H. Godson, Mr. Henry T. Hope, Mr. John Clutton, Mr. J. F. Pownall,
Mr. Wilson Saunders, *Hon. Treasurer.* Dr. Lindley, *Hon. Secretary.*

Vice-Presidents of the Royal Horticultural Society.

Mr. J. J. Blandy, Mr. C. Wentworth Dilke, the Earl Dacie, the Lord Bishop
of Winchester.

H.R.H. the Prince Consort, the President of the Society.

H.R.H. the Prince of Wales.

H.R.H. the Princess Alice.

H.R.H. the Princess Helena.

H.R.H. the Princess Louise.

H.R.H. the Prince Arthur.

H.R.H. the Duchess of Cambridge.

H.R.H. the Princess Mary.

H.R.H. the Duke of Cambridge.

H.R.H. the Count de Flandres.

H.R.H. Prince Louis of Hesse.

Suite.

Police.

After the procession began to move, the bands of the Volunteer
Engineers struck up the "Coburg March," which was suc-
cessively taken up by the bands of the Life Guards in the upper
garden as the procession approached.

On the procession arriving in front of the great conservatory,
the Royal party took up their position on the landing of the
centre entrance, and Dr. Lindley, the Secretary of the Society,
read the following address:—

"May it please your Royal Highness,—Sir, we, the Council of
the Royal Horticultural Society, venture to congratulate your
Royal Highness upon the important stage at which we have now
arrived in the progress of an undertaking originating with your
Royal Highness, and in which you have continued to take so
active an interest—an undertaking for the establishment at the
west end of this metropolis of a noble Garden, by the aid of
which, and of the Society's Gardens at Chiswick, not only the
art of horticulture may be effectually promoted, but an additional
means of enjoyment and recreation may be afforded to the dense
population of London.

"We deeply lament that recent domestic affliction should have
deprived us of the honour, for which we had been encouraged to

hope, of the presence of our gracious Queen at this inaugural
ceremony. But whilst we deeply feel the want of that presence
which would have added the greatest lustre to the day's pro-
ceedings, we are sensible of the many marks of Royal favour
which we have already received, and trust that these Gardens
may, when completed, prove not altogether unattractive to Her
Majesty.

"Horticulture, Sir, is the parent of agriculture. It determines
on a small scale the value of the principles on which an extended
cultivation of the soil depends. It is associated with our food,
our wealth, and many of our social enjoyments. Your Council
believe that this Society has already contributed largely to the
establishment of the sound principles on which cultivation is
founded. In the course of the last half century the Society has
unremittingly used its influence and its means to enlarge the skill
of the gardener and the taste of the community. It has had the
good fortune to see, during that long period, many ornamental
plants and every race of fruits and esculents undergo great im-
provement; and it is not too much to assert that its labours have
raised English gardeners to the highest rank.

"Founded in the year 1804, and incorporated in 1809, by
command of His Majesty George III., the Society, after languish-
ing for some years, sprang into active existence as soon as the
termination of the long war once more left men leisure to cul-
tivate the arts of peace. At that time horticulture had ceased
for many years in every part of Europe to make sensible progress.
All that remained was an unintelligent routine. Up to the year
1816, the number of Fellows who joined the Society annually
rarely exceeded twenty. From that period, however, the
elections rapidly increased; so that in 1821 they amounted to
328. In 1822, the Garden at Chiswick had been formed and
the power of the Society to do good began to be felt even in the
remote possessions of the Crown. Collectors of seeds and plants
for the Horticultural Society were heard of in the United States
and Canada, in India, on the banks of the Zambesi, and in the
distant regions of the Hudson's Bay Company. The result of
these operations was the introduction into England of by far the
larger part of the highly-prized occupants of modern gardens.

"In 1827 was held the first of those fêtes, or, more properly,
exhibitions of horticultural produce, which for so many years
were among the most attractive events of a London season. At
first these meetings were attended with little success; there now,
indeed, remains in the Chiswick Garden, the small iron tent
under which a few cultivators ventured in those days to display
their scanty stores. But liberal rewards produced competition;
gardeners soon saw that to be the gainer of a prize at Chiswick
was to stand at the head of their class; knowledge was sought
for, and improved methods of cultivation were gradually dis-
covered.

"The changing habits of society, the competition of other
similar exhibitions in London itself, the power of locomotion to
more distant places of recreation by railway, combined with the
at-all-times-uncertain nature of our climate, had in late years
materially diminished that attendance of visitors upon which the
income of the Society, and, consequently, its power of encourag-
ing horticulture, depended. It was under these circumstances
that an opportunity of forming a garden in the immediate
vicinity of the metropolis was sought.

"Her Majesty's Commissioners for the Exhibition of 1851, of
whom your Royal Highness is also the President, having pur-
chased out of the surplus funds of that undertaking an estate at
Kensington Gore, it was felt that this locality offered unrivalled
facilities for the establishment of a new Garden, and successful
negotiations with the Commissioners enabled the Council, with
your Royal Highness's sanction, to lay, in July, 1859, the plans
before the general meeting of Fellows, which received their unani-
mous approval.

"An agreement has since been concluded by us with Her
Majesty's Commissioners for leasing a space of 22½ acres upon
a rent, the amount of which is contingent upon the income of
the Society; part of the conditions being, that the Society should
expend on the Garden a sum of not less than £50,000, Her
Majesty's Commissioners binding themselves to enclose it with
arcades of an ornamental character, costing at least an equal
sum. Her Majesty has been graciously pleased to grant the
Society a new charter of incorporation under the name of the
'Royal Horticultural Society.' Our works have not arrived at the
state of completion which we had hoped to have attained by this
time. Taking into consideration, however, the long-continued
wet of last summer, the unusual severity of the subsequent

winter, and the disturbance in the building trade caused by the unfortunate strike of this spring, we cannot but congratulate ourselves upon what has already been achieved.

"The necessity of pressing forward the works will prevent the Garden being as immediately accessible to the public as is hereafter proposed. But the Council felt that the admission of the Fellows and their friends, who have so zealously come forward in support of the undertaking, ought not to be longer delayed. They therefore resolved to hold exhibitions of flowers and fruit in the months of June, July, September, and November of the present year, to admit Fellows and their friends daily, and to allow a certain number of the public to visit the Garden on Saturdays. It is expected that before the ensuing spring all the essential parts of the Garden will be completed. When that time shall have arrived the public will be in possession of a place of resort in which not only may be displayed in the most advantageous way all that horticultural skill can accomplish, but whatever may most conduce to the improvement of public taste in sculpture and its sister arts.

"Since the period when your Royal Highness condescended, as President of the Society, to take an active part in its proceedings, it has enjoyed uninterrupted prosperity. At least 1500 new members have joined it; so much confidence has been placed in the measures of your Council as to have produced, by the issue of debentures, the sum of £50,000 required to meet the Society's engagements with her Majesty's Commissioners; and the Garden in which we are now assembled, itself, Sir, in many respects, the offspring of your own intelligence, has sprung into existence. When the trees shall afford a grateful shade, and the water works in progress shall have been completed, the scene cannot fail to be one of great interest and beauty. Even now the noble arcades, which are three quarters of a mile in length, will afford an agreeable and sheltered promenade in all weather, and the beautiful conservatory before us will be enjoyable in even the severest season.

"Nor can we look upon the various works around us without acknowledging how much we owe to the different gentlemen who have contributed so much genius and skill as well as valuable time to their design and execution.

"In the name of the Society we have the honour to represent, we therefore desire to express to your Royal Highness our earnest hope and confident belief that the formation of this Garden will show that it is not unworthy of the exalted patronage it has received from Her Most Gracious Majesty and your Royal Highness."

To this address the Prince Consort replied as follows:—

"I thank you for the address which you have just presented to me.

"While you have expressed your deep regret at being deprived, on this occasion, of the presence of the Queen, I am enabled and empowered to assure you, that her Majesty, on her part, also sincerely regrets her inability to mark by her presence the interest she takes in your proceedings, and her desire for your success.

"You have addressed me in my double capacity of President of your Society and also of the Royal Commissioners of 1851. In either of these capacities, I cannot but be gratified by the scene now before me.

"Having shared to some extent in your labours and anxieties, I am happy to be able to congratulate you on what has been effected in so incredibly short a time, notwithstanding the difficulties to which you have alluded, and which appeared at times almost to forbid hope of success.

"That, which last year was still a vague conception, is to-day a reality; and, I trust, will be accepted as a valuable attempt, at least, to reunite the science and art of gardening to the sister arts of architecture, sculpture and painting.

"This union existed in the best periods of art, when the same feeling pervaded and the same principles regulated them all; and if the misuse and misapplication of these principles in later times have forced again upon us the simple study and imitation of Nature, individual arts have suffered by their disjunction, and the time seems now arrived when they may once more combine without the danger of being cramped by pedantic and arbitrary rules of taste.

"The Commissioners of 1851, whose mission it is to encourage the arts and sciences as applied to productive industry, gladly welcome your Society as one of the first of those bodies devoted to the promotion of special branches of these arts and sciences that has availed itself of the enlarged means of development

offered by the Commissioners on their estate. They are glad to find in your present success, and in the generous support of the public, the confirmation of their belief that, in securing space on which, in unison with each other, and with a systematic interchange of mutual assistance, separate societies and departments might attain to a degree of usefulness which their present confinement and isolation must materially lessen, the Commissioners had correctly appreciated the great want of the day and the requirements of the public, for whose benefit alone they should work, and by whose assistance alone they can hope to prosper.

"We already see to the south, rising, as it were, by magic, the commencement of a noble work, entirely the result of the voluntary efforts of that public; and this Garden, itself the offspring of the Great Exhibition of 1851, will hardly be completed ere that Exhibition shall have been rivalled, and, I trust, even surpassed by the beauty and success of that which we hope next year to witness.

"This Garden will then open an additional source of enjoyment to the thousands who may be expected to crowd the new Crystal Palace of Industry. Nay, we may hope that it will, at no distant day, form the inner court of a vast quadrangle of public buildings, rendered easily accessible by the broad roads which will surround them—buildings where science and art may find space for development, with that air and light which are, elsewhere, well nigh banished from this overgrown metropolis.

"If the works before us are still incomplete, this must not be attributed entirely to the short space of time allowed for their execution, or to the exhaustion of the funds set apart for them. It results also, in great measure, from a well-considered purpose on the part of the Society and the Commissioners rather to present the public with a framework, to be gradually filled up as individual taste, controlled and harmonised by the general superintendence of the authorities, might direct, than at once to display a complete creation, which, however attractive for the moment, would pall upon us and grow stale by habit.

"Unrivalled opportunities are here offered for the display of works of art, and for the erection of monuments as tributes to great men and public benefactors. The memorial of the Exhibition of 1851, the result of private subscriptions, will be the first received in these grounds; and, adorned with a statue of the Queen, will soon rise in the centre of the Garden.

"May your efforts meet with public approbation! May that approbation give you all the support required, not only further to ornament these Gardens, but also to carry out, even on a larger scale than during the last forty-eight years, the useful objects for which you are incorporated!"

The addresses over, the Bishop of London, attired in his robes, advanced to offer up a prayer for the future success of the new Gardens. His Lordship was attended by the Ven. Archdeacon Sinclair, M.A., as Archdeacon of Middlesex and Vicar of Kensington, and by the Rev. Andrew Ramsay Campbell, M.A., Rector of Aston, Yorkshire, as his attendant chaplain.

The prayer had been specially composed for the occasion by the Bishop of London at the Royal request.

"Collect for the Day."

"O God, the strength of all them that put their trust in Thee, mercifully accept our prayers; and because, through the weakness of our mortal nature, we can do no good thing without Thee, grant us the help of Thy grace, that in keeping of Thy commandments we may please Thee both in will and deed; through Jesus Christ our Lord. Amen.

"Prevent us, O Lord, in all our doings with Thy most gracious favour, and further us with Thy continual help; that in all our works begun, continued, and ended in Thee, we may glorify Thy holy name, and finally by Thy mercy obtain everlasting life; through Jesus Christ our Lord. Amen.

"O Lord, show Thy mercy upon us,

And grant us Thy salvation.

O Lord, save the Queen,

And mercifully hear us when we call upon Thee.

Endue Thy ministers with righteousness,

And make Thy chosen people joyful.

O Lord, save Thy people,

And bless Thine inheritance.

Give peace in our time, O Lord,

Because there is none other that fighteth for us, but only Thou, O God.

O God, make clean our hearts within us,

And take not Thy Holy Spirit from us.

"O Lord, our Heavenly Father, who, when Thou madest man at the first, didst place him in the Garden of Eden, his home in the days of his innocency, look down upon us, who, in the midst of our sin and misery, would recall the thought of that pure and happy estate from which we have long since fallen. We thank Thee, O Lord, for the relics of Eden which Thou hast still left to us. We thank Thee that the weariness of our earthly pilgrimage is cheered by sights, and sounds, and odours—faint images of a beauty not of this earth. We thank Thee for the seeing eye, and the hearing ear, and all the enjoyments of sense and feeling. Teach us, O Lord, so to use all the relaxation Thou hast provided for us in the midst of our business and our sorrows, that, by the Holy Spirit's help, we may be growing fit to enter into the beautiful abode which Thou hast prepared for Thy redeemed, where sorrow is unknown, and the only business is to glorify Thee. O Lord, purify our hearts by the enjoyment of needful rest, and kindly Christian intercourse, and the soothing contemplation of all the charms which Thou hast given to Nature and to Art. Teach us to rise from the sight of present, and the memory of past pure enjoyments, to bright hopes of the restoration of all things in our Lord and Saviour Jesus Christ. Grant, Lord, that this city in which we dwell may be purified from the sins which deform it and their many pollutions. Guide us each to take his part in helping those around us to live Christian lives, that thus we, and all whom we can influence, may be waiting and longing for that holy city, the new Jerusalem, where is the pure river of the water of life, and the tree of life, whose leaves are for the healing of the nations; where there shall be no more curse, but the throne of God and of the Lamb shall be in it, and Thy servants shall see Thy face, and shall reign with Thee for ever and ever; through Jesus Christ our Lord. Amen.

"Our Father which art in Heaven, hallowed be Thy name. Thy kingdom come. Thy will be done in earth as it is in Heaven. Give us this day our daily bread. And forgive us our trespasses, as we forgive them that trespass against us. And lead us not into temptation, but deliver us from evil. For Thine is the kingdom, the power, and the glory, for ever and ever. Amen.

"The peace of God which passeth all understanding, keep your hearts and minds in the knowledge and love of God, and of his son Jesus Christ our Lord; and the blessing of God Almighty, the Father, the Son, and the Holy Ghost, be amongst you and remain with you always. Amen."

His Royal Highness then advanced to the front of the conservatory, and, taking off his hat, formally declared the Horticultural Gardens opened, amid loud cheers.

The procession then moved forward in the same order to the east end of the terrace, when the Prince went through the formality of planting a *Wellingtonia gigantea*, given by Messrs. Veitch & Son. It was a very fine young tree of eight years old, about 7 feet high, and, for its size, with a very thick stem and bark. The ceremony, if such it may be called, was soon completed, and the Royal party, after devoting half an hour to an inspection of the Flower Show, and more especially to the collection of Orchids in the conservatory, partook of refreshments, and quitted the grounds shortly after six o'clock.

The Duchess of Cambridge and the Princess Mary, having begun their tour of observation before the ceremony, were, as a natural result, so tired when all was over, that they preferred to depart by the nearest exit.

Before leaving the grounds all the Members of the Royal Family inscribed their names on illuminated sheets of paper, which were immediately framed and hung up for general inspection. We have the loyal satisfaction of saying that the little Princesses write very prettily indeed, dotting their i's, crossing their t's, and looping their long letters with exemplary precision. The names Alice, Helena, Louisa appeared severally on three blossoms of heartsease, all in a row; Arthur, in a determined round hand, came by himself in a spacious blank.

THE EXHIBITION.

THIS will be a memorial day in the annals of gardening. From the day Mr. Sabine took up the spade at Chiswick, to the planting of that *Wellingtonia* on the 5th inst. by the Prince Consort, immediately after he had opened the new Garden and declared it to be the inner court of a vast quadrangle of public buildings where science and art may find space for development, the

science of our craft found small space for developing the energies of the practical mind of gardeners; and practically, we had no leader for the last forty years, otherwise we might have turned out more Paxtons, McIntoshes, Flemings, and Eyles, and other heads of sections of the circle than we have done. But let us be thankful, and hope that the next forty years will make up the difference; and that the heads of the different branches of the cultivators of the science, and of the practical part of the work before us, will unite their efforts, not only within the "vast quadrangle," but extend them to the land's end on each side of it, and to the limits of the great circle whose products and properties we are all interested in developing.

This commencement was on a magnificent scale, and every one from the highest to the most humble who contributed to the success of the opening scene, must have been well pleased at the result. All the arrangements were perfect as far as I could see and hear. There never was such an enormous stock of plants in one place before, and of such a description. In twenty-three years after the first experiment was tried of showing plants for their own sake instead of for their flowers, two-thirds of this vast gathering were of that very description; and some of those who were the foremost to laugh at the daft experiment of 1838, were laughing in my presence in these arcades at their own good luck and success in crowning the rival to the floral fancy, and you never saw another set of people more in harmony and more pleased with each other than we were.

The most extraordinary circumstance, however, connected with this step in the progress of our experiments, was a large collection of most welcome plants that were sent from Japan by Mr. Fortune expressly for this Exhibition. These Japan plants arrived in England on the Friday before the exhibition-day, and were in a fit and proper state for the exhibition tables—in short, as good specimens of cultivation as ever I remember to have seen exhibited by English gardeners in these very rare or very new plants. Indeed, I could name some plants at the Exhibition which came from within a short distance from the Garden, that were not so creditable to the growers as those sent over by Mr. Fortune were to the gardeners of Japan. These Japanese seem to have the very same style of taste in plants as ourselves, and also to have as good gardeners and as careful propagators as we could turn out. Mr. Staudish, of Bagshot, exhibited these plants, and, of course, he will set to and propagate and sell them as fast as possible.

Cyano-hyllum magnificum and *Dion edule* were the two most splendid plants there. One plant of *Aerophyllum venosum* was the greatest triumph of gardening there in growing specimen plants; it was in a first-prize collection of nine plants by Mr. Chilman. The best single specimen there, or anywhere else in Europe, I should think, was Mr. Warner's *Lælia purpurea* with thirty-six full-blown flowers on it. It was only the week previous that I was boasting of one at the Crystal Palace from Mr. Stone, which had eleven blooms on; and even at this grand Exhibition, two of the best *Lælia purpurea*s had each only eight flowers. The greatest success over the greatest difficulty in growing very rare plants, was Mr. Leach's exhibition of the *Disa grandiflora* growing exactly like a luxuriant native along the edge of some ditch where there were no commissioners for looking after the drainage and sewerage.

In my own favorite family of Ferns, *Gleichenia* is now the most favoured at the Exhibition, and I think every species of it was there; and every one who showed Ferns had more or less of the different *Gleichenias*.

The Fruit was most tempting, and the only part at the Exhibition that was not well arranged for. The fruit stand was an oversight—it was a double stand, with one side, or one-half in the shade, and facing the back wall of the arcade: of course, one-half of the fruit could not be seen well. The Pines were as good as usual. The White Grapes not quite ripe enough for a high-class dessert; the Black Grapes were never better seen in this globe. The Buckland Sweetwater, for which I risked my liberty three years back at the Crystal Palace, was by far the best White Grape there, and will be the gardeners' best friend in White, as the Hamburg has always been in Black. Ingram's Hardy Prolific Black Muscat is decidedly of the Black Prince section, and the very best of Grapes; and the Trentham Black is of the Hamburg race, and wore the best bloom of all the Black Grapes there. But I must put off the best part of the fruit tale till I have more time and room, adding only this remark on the grand new idea of giving prizes for dessert arrangement—that it turned out exactly as some of my patrons, from whom I

earn all about the fashions, colours, taste, fancy, and forget-nots, predicted to me months back; and I would be bound that nine out of every ten gardeners who saw these desserts in competition, did not understand even the meaning of the first-prize dessert. Why should we not have the three degrees of comparison in the dessert? And, surely, people would need to know for whom the dessert was intended before they could make a proper use of the dishes, fruit baskets, and their own brains. Nothing, at least, would puzzle me so much as to be told to dish up eighteen or twenty dishes of fruit for a party, without having some idea of whom the party consisted.

I began at the western arcades, and took the measure of the Show in yard steps as nearly as possible. The plant stages were in three broad steps, covered with green baize, and set up against the white of the back wall of the arcade, which was most telling to Ferns and all the fancy and fine-leaved plants; but the white of the back wall took off much of the glow of Pelargoniums and Rhododendrons: indeed, more so, as all the light is from behind the head of the visitor. Cover that part of the back wall with green baize and you spoil it much more. Too much of one shade of green for a ground colour to green leaves of all degrees of green, will not stand the test of good effect out of best flowers. Dark brown or dark oak colour I am told to a certainty is the best to put behind flowering plants when the pots stand on green cloth, or dark grey if the pots are on brown boards or mother earth. In front of the plant stage a space of 12 feet wide in gravel makes up the rest under the cover of the arcade.

The first 24 yards were of huge Ferns; then two rows of Rhododendrons, and 17 yards of Heaths; then 6 yards of fine-leaved plants, and 69 bouncing steps of Pelargoniums, which brought us on to the west end of the conservatory. Along the west end, the front, and across the east end of the conservatory, is a narrow shelf holding one row of large plants, or two rows of middlings, and three rows of comfortable plants not small, nor large, nor middling. One hundred and fifteen yards of that stage were devoted to plants, the rest to doorways and other ways. The whole of these 115 yards might be said to be filled with new plants, rare plants, or fancy novelties of some degree. Here the Messrs. Veitch, exhibited some of their rarest gems, and they were many and most abundant. Mr. Standish, stood across the east end with that collection of Japan rarities just mentioned, consisting of from forty to fifty specimens. Then the two firms of Hendersons, the Pine Apple and the Wellington heros, with all the fancy of their respective firms. Then Mr. Turner and Mr. Ivery with new Azaleas. Then Milne, Arnott, & Co., with their new Gloxinas, and three new rivals in the Messrs. Bull, Linden, and Verschaffelt; and, last of all, and biggest of all the rest, Mr. Warner's "Good Gracious" *Lælia purpurata*, and another which he calls after Mr. Day, who first bloomed it, *Lælia purpurata* Dayii. But I shall have them all in detail before I end.

Along the back of the conservatory stood a large portion of the vast assemblage of variegated Begonias, the whole of the Orchids, and of the specimen and collection of Roses, the new ones being on the front stage, and all these took up 70 yards of very wide stages, in three easy steps. Within the walk or front passage of the conservatory was a double stand for all the collections of stove and greenhouse plants, and for Azaleas, some Begonias, and for two large collections of Ferns—that of Mr. Williams, of the Paradise Nursery, being the best ever exhibited. He ought to write a book on them, as the one he wrote on Orchids, if only to tell how to pack and unpack for exhibition. Of these double stages there were 35 yards, leaving a gravelled space 18 feet or 20 feet wide between them and the back stage along the very back. In the very centre was a large circular stand cutting the scene in two—a wrong principle. Right and left of that circle—the last circumference of protection for Roses—stood a single file of all sorts and degrees of Wardian Cases, and miniature drawing-room greenhouses, stoves, and ferneries. Then out of the house, and into the east arcade, where the fruit was, Mr. Noble's, of Bagshot, beautiful Rhododendrons; then 89 yards of the largest and finest variegated and fine-leaved plants in the world, under pot and tub culture, the like was never before seen, 12 yards British Ferns, 6 yards tall Cacti, 6 ditto Melocacti, and other dwarfs of the prickly races, 4 yards or 5 yards of Calceolarias, 6 yards of seedling Pelargoniums, and others on the double stage, 2 yards Amaryllids, 4 yards with Mr. Williams' hardy variegated plants, and 6 yards of Mr. Salter's ditto, 12 yards of cut Roses from Mr. William Paul and Messrs.

Lane & Son, and many seedling novelties, among which a dwarf dark purple Nasturtium-looking *Tropæolum*, in the style of the Tom Thumbs, promised to be a first-rate and the first good bedder of that race. Mr. Smith had his new bedding *Calceolaria canariensis* there as the best of that brood. The single striped and double Petunias were very beautiful; one single light with red stripes, from Mr. Ferguson, of Stowe, was most striking, as were the pot Pansies from Messrs. Downie & Laird, and from Mr. Bragg. Mr. Dean, of Shipley, Bradford, had two boards of his Belgian Pansies, in cut blooms, very fine, and amongst them his large, light Princess Alice, to which we gave a handsome lift at the Floral Committee the week before.

The Fruit double stand was 18 yards long. Three bunches of the Buckland Sweetwater weighed 6 lbs. 4 ozs., and three of the Black Prince 8 lbs. 4 ozs., all from Mr. Hill, of Keele Hall. Thirty-one or two Pine Apples, twenty pots of Grapes, and two pairs of pot Grapes trained archways on the back wall, with twenty-nine bunches of Black Grapes from Mr. Saunders, gardener to Sir H. Meux, were set off that way better than any I ever saw exhibited. Her young Grace of Sutherland kept up the old charter in competing with Her Majesty with a full collection of eight dishes of splendid fruit. Mr. Henderson came out again in the old Fleming style; and Mr. Ingram was worthy of his name, and to give Her Majesty the first place. He had Black Hamburgh and Muscat Grapes, Smooth Cayenne Pine—a fine fruit, Peaches and Nectarines, British Queen and Prince Arthur Strawberries, May Duke Cherries, and Beechwood Melon. Mr. Henderson mounted Black Hamburgh and Black Trentham Grapes (the bloom on the latter inimitable), Smooth Cayenne Pine, Peaches, Nectarines, Black Circassian Cherries, and two dishes of Melons—the Trentham Hybrid White Flesh and the Trentham Hybrid Green Flesh, both of exquisite flavour; but I was round before the Judges, and did not see the prizes of any of the fruit.

But I must give you some idea of the new plants from Japan, and all along the front stage; for about collections, if you read over again the reports of the May shows for the last seven years and suppose you are reading of this Show, you will not be two plants behind the time you are reading. To begin at the beginning I must take the north-east corner of the house, and there were six huge pot-baskets with *Ætostichidi* under great glasses from Messrs. Veitch, and by the side of them three small plants of the purple Maple of Japan, *Acer japonica*; and from a large specimen of it from the Pine Apple Place Nursery, one could accept it as a rival to our purple Beech. Then three *Libocedrus tetragona*—the true source of the Alerce wood, of which you heard so much from the Spanish contribution to the first Crystal Palace in 1851. It is as upright as a dart, and of a lively green, and seemingly a very fast grower. Three plants of a new Silver Fir from Vancouver's Island; a very curious little *Thuja*; and three of a most curious *Cryptomeria japonica*—more like a *Retinospora* than a *Cryptomeria*, and an evergreen, a bedding plant with little green about it, but the most beautifully variegated plant, as like the variegated Periwinkle as you can draw it, and all the time a new *Euonymus*. Get a stock of this shrub, and all you will have to do to edge the ribbon after the planting is finished is to put in a row of cuttings of this very thing; every one of them will root so, and while they are doing that and for the rest of the season you have the very best variegated edging I can think of. The same plants will do half a dozen years, as the kind seems quite a dwarf. This, and Mr. Bull's *Agathæa* or variegated *Cineraria amelloides*, and Mr. Salter's *Veronica chamaedrys variegata* are three gems, take my word for it. How most strange it seems to call the dear old *Cineraria amelloides*, now termed variegated, by its true name, while the wrong old name would alone sell a thousand of it ere people can call to memory the new name—*Agathæa*, and then not know if it is the fashionable pronunciation! How often have I asserted that it is the best of all plants to keep in pots in readiness to fill up in a hurry, as all the soil can be shaken from the roots in the hottest day in July or August, and one watering after planting it so is sufficient to keep it unflagging.

After these stood the forty or fifty plants arrived from Japan on the previous Friday. What a fortunate man Mr. Fortune has been, that he can send from the ends of the earth plants fit for present exhibition. The Parasol Pine took my eye first—that is *Sciadopitys verticillata*; a fine variegated *Gordonia* sp., a variegated *Eurya* sp., a variegated *Osmanthus angustifolius*, like a genteel form of a silvery holly. The dwarf variegated Bamboo

in bunches, a new evergreen *Berberis*, several kinds of variegated *Camellias*, a variegated *Tea plant*, *Thea viridis*, two or three kinds of variegated *Podocarpus*, a variegated *Daphne*, ditto *Elaeagnus*, a green and a variegated *Retinospora* something, variegated *Illicium*, golden *Podocarpus*, *Thuopsis dolabrata* variegata—the finest variegated plant of the creation—nothing on earth can beat this for gemiferous looks; *Aucuba japonica* *femina* to cross and get seeds from at last, and a beautiful mate for the "*Magnolia spottifolia*" of Mr. Walter Dickson, and ever so many more of the same selections of garden gems which the Japanese value as much as we do our variegated *Geraniums* and other softwooded plants.

Next to these stood three more plants from the Messrs. Jackson, of Kingston—a fine-looking *Quercus bambusæfolia*, a long soft-leaved *Buxus* from Nepal, and *Juniperus drupacea*, a strong upright grower. Then some extraordinary queer thing growing in jointed flaps against a deal board, from Mr. Williams, of the Paradise Nursery, said to be from Manilla.

Then a collection of thirty-two kinds of most rare and ornamental plants from the Messrs. Veitch, consisting of *Selaginella atro-viridis* and *Lobbia*, also *conferta* and *caulescens*—as much like fine *Ferns* as *Lycopods*; *Lycopodium phlegmiana*—a tree *Lycopod*, *Lomaria falcata*—a miniature tree *Fern*, exquisite, and *Leptopteris superba*—a filmy *Fern* under a glass cap; *Sonerilas*, *Medullarium*, *Physurus*, *Sarracenas* of many sorts, *Campylobotrys*, *Gardenia radicans* variegata—a Japanese of course, *Ouvirandra*, the water-lace leaf of Madagascar, the Australian *Pitcher-plant*, *Cephalotus folicularis*, which stood out several winters in Cornwall with the late Sir William Molesworth, a *Venus' fly-trap* *Dionaea*—fine-looking and fine to the touch, *Maranta ornata*, with long upright footstalks to the handsome leaves, *Caladium Veitchi*, of the shine of *Alocasia*, and the *Adelaster albivenia* lately before the Floral Committee.

After these another collection from the same exotic growers—say *Selaginella Walliichi*, a *minosa-leaf-like* plant, a love of a thing; *Caladiums*, *Pitcher plants*, a fine *Pteris argyræa*, and *cretica albo-lineata*: *Caladium Bellemeyi* done to a T, also the *argyrites*; *Colocasia edulis* variegata, a splendid thing; and the *Alocasia metallica* with eight leaves, coloured as it is in "*The Illustrated Bouquet*," and not of that dark brown dusty out-of-the-world looks you sometimes meet with where the plant is starved with cold and wet.

Mr. Jackson followed up from Kingston with *Lonchitis aurita*, fine; *Colocasia antiquorum*, variegated and very fine; *Asplenium filix-femina*, a most delicate frizzly *Fern*; and a good *Pteris cretica albo-lineata*—the variegated *Fern*, which I am just going to compete with my variegated *Nosegay* out of doors.

Mr. Bull next, with a prickly-leaved *Hippomane*, like some *Brexia*, of which a huge plant was in a distant collection; *Campylobotrys* of sorts; *Theophrastia* ditto; a large *Lomaria heteromorphia*; *Araucaria Cunninghami*, new to me, and seems a robust thing; young *Palms* of sorts and other sorts of that run; and six plants of *Arthrotaxus Donni*; and a fine lot of *Agathæa cœlestis*, or the variegated *Cineraria amelloides*, getting better and better as the season goes on. Mr. Bull ought to make a fortune out of that one plant—the most useful plant and the easiest to grow and to keep you can think of.

Then a fine lot of upright *Gloxinias* from the Messrs. Smith, of Dulwich, and from Messrs. Milne, Arnott, & Co.; then a stumpy tree *Fern*, *Todea pellucida*, from Mr. Standish; then a large collection from Mr. Henderson, of Pine Apple Place Nursery, including the aforesaid large plant of *Purple Maple*, *Acer japonica*, a beautiful variegated *Yucca filamentosa*, and the bright silvery-leaved *Acer negundo*, and a variegated *Cobea scandens*. Then assortments of the newest *Roses*, of which *Evêque de Nîmes* was very choice, and the next two, *Madame Bonnaire* (H.P.) and *Triomphe de Lyon* (H.P.).

The collection from the Wellington Road Nursery succeeded; and here were the very fancy *Petunias*, double and single, plain and spotted, edged and striped, and of the liveliest shades of colour. What really nice things there are now in this one family! The very elegant basket plant, *Convolvulus mauritanicus*, with the light blue of the finest campanula, a love of a plant, just a lady's gem of a thing; *Caladiums* in all their spots; *Begonias*, ditto; *Chamæcyparis sphaeroides*, a new fine *Conifer*; *Blandfordia nobilis*, in good bloom; the *Bellemeyi Caladium* particularly good; *Lady Emily Peel*, the best of the *Shrubland Rose* breed of *Petunias*; *Sphærostema marmorata*, a fine climber; *Amaryllida*

and several others of the improved seedlings of garden plants then a huge plant of *Orchis foliosa*, with sixteen flower-spikes from Mr. Williams aforesaid; and a large *Dendrobium nobile*, from Mr. Hedge, Norwich Road, Ipswich, as you go out to Shrubland Park. Then the grand monarch of all this grandeur—the grand *Lælia purpurea* with thirty-six blooms on it, from Mr. Warner, who is one of our Committee, and was as deep in the procession as W is low in the alphabet, for we all went in for it, dictionary fashion. By it was the variety called after Mr. Day, who first bloomed it, and also a fine variety of *Cattleya*, which he calls after Mr. Fairrie, of Liverpool, for his blooming the kind for the first time. But at this point everybody I ever knew seemed to meet and wished to have a chat, so I may be wrong in Days and Fairries; but I threw away my book and ran out of the house, and I must find it before I go further.

D. BEATON.

MR. DILKE'S PRIZES.

C. Wentworth Dilke, Esq., offered prizes for the best designs formed of combinations of flowers and fruits, for the decoration of the dinner table. The competitions were very numerous, and occupied a table, 100 feet long, in the western arcade. The Judges were, the Countess of Ducie, the Countess of Shelburne, and Mrs. Holford, assisted by Professor Westmacott. The designs embraced every imaginable shape and form, from the tawdry and unmeaning groups you sometimes see at rural flower shows to the elegant and costly *eperges* of the metropolitan saloons. Most were of silver and crystal, richly cut, chased, and set; some of parian, porcelain, or earthenware, and some entirely of glass. Speaking generally, it was a most magnificent exhibition, and formed one of the most, if not the most, attractive feature of the whole. As was to have been expected, the most simple and elegant group was the most successful, and this was designed and supplied by Mr. Thomas C. March, of the Lord Chamberlain's Office, St. James' Palace; but the arrangement of the flowers and the fruit was the work of his sisters, Mrs. Henry Pickering and Miss March. The design consisted of a large crystal dish as a base, on which were placed three tall slender stems, each bearing a flat dish on the top. These dishes were ornamented with *Maidenhair Fern*, rings of *Forget-me-not*, *Lilies of the Valley*, *Lycopodiums* creeping up the stems, *Pansies*, *Rose-buds*, and small bunches of *Grapes* introduced here and there. The second prize was awarded to Lady Rokeby, the third to Lady Caroline Kerrison, and the fourth to Messrs. Elkington & Mason. Other exhibitions by Lady Emily Peel, Lady Trowbridge, and Mrs. T. Jones were highly commended.

THE FLORISTS' FLOWERS.

LEAVING to others to describe the grand ceremonial of the opening day, and the magnificent collection of stove and greenhouse plants, the waving *Ferns* of New Zealand and Australia, and the luscious fruits of all climes—relinquishing, with no small degree of regret, the task of describing the wondrous novelties sent home by Mr. Robert Fortune to Mr. Standish—yea, even abandoning the pleasant work of dilating on the contributions for Mr. Wentworth Dilke's prizes for ornaments for the now-fashionable dinners à la Russe, I must keep in mind *ne sutor ultra crepidem*, and, therefore, stick to my last—namely, the Florists' Flowers—the weakest point of the Exhibition without doubt. Some months ago I alluded to the subject in THE COTTAGE GARDENER, and said then the time was rather unfavourable, and that the schedule did not offer many advantages to the cultivators in that class. No prizes were offered for *Pansies*, *Pinks*, *Calceolarias*, or *Verbenas*; and though of all, save the second, stands were exhibited, yet there was not, of course, the incentive that the offering of prizes for them would have created. There was, moreover, the same miserable confusion about seedling flowers that there always is, perplexing the Judges, confusing the visitors, and, of course, dissatisfying the exhibitors; yet withal my often-expressed opinion was confirmed then as well as at other times—while the large collections of stove and greenhouse were comparatively unnoticed, the groups of visitors were concentrated around the *Pelargoniums*, *Pansies*, *Verbenas*, *Roses*, and *Fruit*. In the former the same old faces present themselves from the same exhibitors, while in the florists' class there is the charm of ever-increasing novelty.

The large ROSES in Pots occupied the centre of the great conservatory, distributing their fragrance around. The first prize (for fifteen) was awarded to Messrs. Lane & Son, for Jules Margottin (H.P.); Madame Plantier (H.C.); Comtesse Molé (H.B.); Madame Damaizin (Tea); Louis Peronny (H.P.); Paul Ricaut (H.B.); Le Lion des Combats (H.P.); Miss Clegg (N.); Coup d'Hébé (H.B.), a beautiful plant; Chénédole (H.B.); Blairii No. 2, very fine; Juno (H.C.); Gloire de Dijon (Tea), rather too full blown; Elize Mercier (H.B.).

The second prize was obtained by Mr. Wm. Paul, with Charles Duval; Bougère; Paul Perras; Paul Ricaut; Juno; Coup d'Hébé; La Reine; Auguste Mûr; Volours Episcopal (H.C.); Charles Lawson (H.C.), very fine; Duchess of Sutherland; Duke of Cambridge; Comte Boubart, fine large Rose; Madame Willermoz, very large and fine.

The third prize to Mr. Francis, of Hertford.

The first prize for NEW ROSES in small pots was awarded to Messrs. Paul & Son, Old Nurseries, Cheshunt, for Leonie Moise (H.P.), a miserably-shaped Rose, bright enough in opening, and then slating off; Madame Halphin (Tea), fine; Evêque de Nîmes (H.P.), a charming little rosette, though not deserving the name of a new Rose; Regulus, a bad Tea; Victor Verdier, a fine Jules-Margottin style of Rose; Buffon (H.P.), a very sweet colour at first, but very soon dying off; President (Tea), very fine; Admiral Nelson (H.P.), rosy crimson; Madame Boll (H.P.), very fine habit; Mademoiselle Bonnaire (H.P.), sweetly pretty, nearly white; Triomphe de Lyon (H.P.), splendid dark Rose, but, like a good many of its class, will doubtless fade soon in hot suns.

The second prize was awarded to Mr. W. Paul, of Waltham Cross, for Anna de Diesbach (H.P.), very large, almost like a pæony; Victor Emmanuel, very fine Bourbon; Belle de Bourges-Reine, a very beautiful rose-coloured flower; Anna Alexiell (H.P.), rough; Adolphe Boussange (H.P.), fine purplish-crimson; Homer, fine Tea; Orillanne de St. Louis (H.P.), dark but thin; Buffon (H.P.). I have not entered into lengthened descriptions of these Roses, as I have been blooming them all under my own eye, and shall hope to give, as far as I can, their characters, &c., in some future Number.

CUT ROSES were exhibited in considerable numbers, both from Messrs. Paul & Son and Mr. W. Paul. They were, of course, from plants bloomed under protection, and consisted of the usual effective sorts for such a purpose, and did not present anything worthy of observation. Amongst amateurs, the first prize for Ten Roses in Pots was taken by Mr. Terry, gardener to C. W. G. Puller, Esq., Youngsbury; second, by Mr. Rowland.

The PELARGONIUMS, as usual in June, were magnificent; and both amateurs and nurserymen showed to what a point good cultivation and care will bring plants. The contest in the Amateurs' class of large Pelargoniums was an exceedingly close one, there being some difficulty in determining which were the most effective. Mr. Nye, of Clewer, and Mr. Bailey, of Shardeloes, running very closely, the former winning the first prize by a neck. His plants were—Carlos, Fairest of the Fair, Sir Colin Campbell, Viola, Saracen, Empress Eugénie, Flora, Sanspareil, Rose Celestial. The second contained Gem of the West, King of Scarlets, Saracen, Bianca (the frail one was the weak point in the lot, and decided the race, not being so fully bloomed), Spotted Gem, Eugène Duval, Mr. Marnock, Sanspareil, Carlos. Mr. Shrimpton, gardener to A. F. Doxat, Esq., Putney Heath, was third; and Mr. J. Weir, The Elms, Hampstead, fourth.

Amongst Nurserymen in the same class Mr. Charles Turner, of Slough, was, as usual, first with Candidate, Sir Colin Campbell, Nestor, Sanspareil, Desdemona, Festuc, Viola, Governor General, Rose Celestial, Ariel, Prince of Wales, and Fairest of the Fair. Messrs. Dobson & Son were second; and Messrs. Fraser & Son, of Lea Bridge Road, third.

In FANCY PELARGONIUMS, the first prize amongst Amateurs was obtained by Mr. Bailey, of Shardeloes, with fine plants of Lady of the Lake, Princess Royal, Formosissima, Attraction, Acme, and Evening Star.

Amongst Nurserymen, Mr. Charles Turner held his well-earned place with wonderful plants of Cloth of Silver, Acme, Musjid, Celestial (a beautiful plant, completely covered with bloom), Lady Craven, Rosabella, Captivation, Circle, and Modestum. Nothing could exceed the cultivation of this group.

Messrs. Fraser, of Lea Bridge Road, were second with a well-grown group.

In Nine Spotted Varieties there was, not any competition;

the only group exhibited being one by Mr. Charles Turner, with Bertie, Mr. Marnock, Conspicua, Osiris (very dark), Guillaume Sevryns, Madame Furtado, Beadsman, Picnic, and Peacock.

Several promising Seedlings, of which I dare say we shall see more by-and-by, were contributed by Messrs. Turner, Beck, and Dobson. Amongst those of the former were also some from that eminent raiser, Mr. Hoyle, of Reading. By-the-by, it is no slight tribute to the excellence of his flowers, that, although Mr. Foster, of Clewer, has been an equally large raiser, yet in his own group exhibited to-day all the flowers but two were either Turner's or Hoyle's. There is such a muddle always in the seedlings that one can with difficulty see what are really exhibited. Turner's Diaphantus (racehorses and actresses seem special favourites amongst raisers) is a beautiful soft rose, but apt to burn at the end of the spot. Hoyle's Mrs. Hoyle, a fine soft purple, with white throat; Beck's Butterfly, a very dark spot—the French varieties, in fact, are now assuming the shape of the English fancy; Beck's Peeress (a fine dark flower), Turner's John Leach (a most beautifully-shaped spotted variety, and as smooth as possible), Dobson's Mademoiselle Patti (a fancy variety of lively colour), were amongst some of the most noticeable; but on some future occasion, when it can be done with less hurry, I shall be able to speak more at length on these novelties.

Several stands of PANSIES were exhibited, both in florists' varieties and, in what will ultimately, I see, be a favourite class—the Belgian or fancy varieties. I wish that those good people, who talk about the conventionalities of florists, and say that flowers are drawn more perfect than they really are, would take the trouble to look at a good stand, such as that exhibited by Messrs. Downie & Laird. There was one, Lady Lucy Dundas, which was as completely circular as if a crown piece had been laid down and the outline of the flower cut to it. Having mentioned this box I may say that it contained Seraph, Lord Clyde, Imperial Prince, Countess of Rosslyn, Duchess of Wellington, Rev. H. H. Dombain, Mrs. Hope, Nepaulese Chief, Una, C. W. R. Ramsay, Ladyburn Beauty, Royal Standard, General Young, Miss Carnegie, Nymph, Cherub, Miss Talbot, Lady Belhaven, Rev. Joshua Dix, Mary Lamb, Perfection, Mrs. Laird, Reine Blanche, Mr. Graham, Mrs. Laing, Rev. J. White, Dr. Stewart, Saturn, Midnight, Lady Lucy Dundas, Yellow Beauty, Alexander McNab, Isa Craig, Jessie, Mrs. Downie, and Captain B. Stewart. Other boxes were contributed by Messrs. Shenton and Bragg. Some of the fancy varieties were very curious, and there was really an approach, both in shape and substance, to many of the florists' kinds.

A fine stand of VERBENAS was also contributed by Mr. Chas. Turner, of Slough, to which fourth prize was appended, confusing everybody, as there were none others. It contained Firefly (very bright scarlet), Bellona, Angelina, Elfrida, Minnie, Garibaldi (said to be the best Verbena out, but certainly, as shown here, deficient as a trusser), Souvenir de Victoire Modeste, Admiral Dundas, Diadem, Miss Ivory, General Simpson, Mr. Foster, Premier, Venus, Comet, Rose Imperial, Matilde, Hankye, Miss Dolby, Toratore, Seedling Pink, Magnificens, Prince Frederick, and The Pride.

Amongst miscellaneous objects bearing on my peculiar line were the hardy Rhododendrons exhibited by Messrs. Noble and Mr. Standish, who each sent some promising seedlings; one by the latter, called Climax, of a rich purplish-crimson, spotted, with fine foliage, was very remarkable. Messrs. Veitch and Son also contributed a Mimulus, called cupreus, from Chili, which they have proved to be perfectly hardy. It is a bright orange of very dwarf growth. Mr. Standish also exhibited Azalea anæma hybrida, a small, neat, and hardy sort. Calceolarias, both shrubby and herbaceous were exhibited, but Mr. Burley's fine plants were badly placed for seeing. There was also a nice new bedding kind called Canary, and another already noticed—angustifolia globosa.

No one can have any idea what an amount of labour and anxiety this Show must have occasioned to all concerned; and, notwithstanding all Mr. Eyles' well-known experience, this must have taxed him to the uttermost; and the manner in which he met the wishes of the exhibitors, his urbanity and good temper, were beyond all praise. Doubtless another year will suggest some alterations. It seems too bad to carp where all was so well done; but I do hope the florists will be more encouraged next year at the first Show. In all else they are liberally dealt with. A few prizes, even of small amount, distributed amongst them, would doubtless bring together a.

large amount of contributions. It showed some energy and interest in growers that, despite of this, so many things were contributed. May their zeal meet its reward.—D., Deal.

THE PRIZE LIST.

FLOWERS.

Class 1.—FIFTEEN STOVE AND GREENHOUSE PLANTS (Open).—First, W. May, gardener to J. Spode, Esq., Rugeley. Second, B. Peed, gardener to J. Tredwell, Esq., Lower Norwood.

Class 2.—TWELVE STOVE AND GREENHOUSE PLANTS (Nurserymen).—First, J. Veitch & Son, Exeter and Chelsea. Second, W. Cutbush, jun., Barnet. Third, O. Rhodes, Sydenham.

Class 3.—NINE STOVE AND GREENHOUSE PLANTS (Amateurs).—First, H. Chilman, gardener to Mrs. Smith, Ashted. Second, J. Green, gardener to Sir E. Antrobus, Lower Cheam. Third, J. Baxindine, gardener to W. H. Smallpiece, Esq., Guildford. Fourth, W. Kaile, gardener to the Earl of Lovelace, Ripley.

Class 4.—SIX STOVE AND GREENHOUSE PLANTS (Amateurs).—First, T. Page, gardener to W. Leaf, Esq., Streatham. Second, J. Tegg, gardener to Baron Hambro', R. champton.

Class 5.—TWELVE FINE-FOLIAGED AND VARIEGATED PLANTS (Nurserymen).—First, J. Veitch & Son, Exeter and Chelsea. Second, B. S. Williams, Holloway. Third, T. Jackson & Son, Kingston. Fourth, J. & C. Lee, Hammer-smith.

Class 6.—TEN FINE-FOLIAGED AND VARIEGATED PLANTS (Amateurs).—First, H. Hamilton, gardener to T. Butt, Esq., Cheltenham. Second, A. H. Gunner, gardener to W. F. Wooller, Esq., Kensington. Third, C. Hutt, gardener to Miss Burdett Coutts, Highgate. Fourth, G. Young, gardener to W. H. Stone, Esq., Dulwich. Extra Prize, G. Nicholson, Bushy Grove, Watford.

Class 7.—SIX DRACENAS AND CORDYLINES (Open).—First, J. Veitch and Son, Exeter and Chelsea. Second, J. & C. Lee, Hammersmith. Third, W. Bull, Chelsea. Fourth, G. Young, gardener to W. H. Stone, Esq., Dulwich.

Class 8.—TWENTY ORCHIDS (Amateurs).—First, B. Stone, Tottenham. Second, B. Peed, gardener to J. Tredwell, Esq., Lower Norwood.

Class 9.—SIXTEEN ORCHIDS (Nurserymen).—First, J. Veitch & Son, Exeter and Chelsea. Second, S. Woolley, Cheshunt. Special Prize, O. Rhodes, Sydenham.

Class 10.—TEN ORCHIDS (Amateurs).—First, G. Baker, gardener to A. Bassett, Esq., Stamford Hill. Second, F. Lovell, gardener to H. E. Garney, Esq., Natfield. Third, C. Penny, gardener to H. H. Gibbs, Esq., Regent's Park. Fourth, E. McMorland, gardener to J. Spode, Esq., Hampstead.

Class 11.—ORCHIDS, Single Specimens (Open).—First, R. Warner, Esq., Broomfield. Second, B. S. Williams, Holloway. Third, J. H. Hedge, Ipswich.

Class 12.—NINE GREENHOUSE AZALEAS (Amateurs).—First, T. Page, gardener to W. Leaf, Esq., Streatham. Second, S. M. Carson, Chem. Third, J. Green, gardener to Sir E. Antrobus, Lower Cheam. Fourth, B. Peed, gardener to J. Tredwell, Esq., Lower Norwood.

Class 13.—NINE GREENHOUSE AZALEAS (Nurserymen).—First, C. Turner, Slough. Second, J. & J. Fraser, Lea Bridge Road.

Class 14.—SIX GREENHOUSE AZALEAS (Amateurs).—Prize, W. May, gardener to J. Spode, Esq., Rugeley.

Class 15.—NINE GREENHOUSE AZALEAS, New Kind (Open).—First, C. Turner, Royal Nursery, Slough. Second, Ivory & Son, Nurserymen, Dorking.

Class 16.—SIX RHODODENDRONS, Distinct (Open).—First, C. Noble, Sunning Dale, Bagshot. Second, J. Standish, Bagshot, Surrey.

Class 17.—RHODODENDRONS, Sikkim and Bhotan (Open).—Prize, A. Henderson & Co., Edgeware Road.

Class 18.—FIFTEEN ROSES IN POTS, Distinct (Open).—First, H. Lane and Son, Great Beckhampstead, Herts. Second, W. Paul, Waltham Cross. Third, E. Francis, Hertford.

Class 19.—TEN ROSES IN POTS, Distinct (Amateurs).—First, T. Terry, gardener to C. W. Giles Puller, Esq., Youngsbury. Second, A. Rowland, Lewisham, Kent.

Class 20.—TWELVE NEW ROSES, in Pots, two of kind admitted (Open).—First, Paul & Son, Cheshunt. Second, W. Paul, Waltham Cross.

Class 21.—SIX TALL CACTI (Open).—First, J. Green, Cheam. Second, W. Young, Highgate.

Class 22.—SIX CAPE HEATHS (Open).—First, B. Peed, gardener to J. Tredwell, Esq., Lower Norwood. Second, T. Jackson, & Son, Kingston, S.W. Third, W. May, gardener to J. Spode, Esq., near Rugeley. Fourth, E. Baxindine, gardener to W. H. Smallpiece, Esq., Guildford. Extra Prize, T. Page, gardener to W. Leaf, Esq., Streatham.

Class 23.—NINE PELARGONIUMS, Distinct (Amateurs).—First, W. Nye, gardener to E. Foster, Esq., Clewer. Second, T. Bailey, Amersham. Third, J. Shrimpton, gardener to A. F. Daxat, Esq., Putney Heath. Fourth, J. Weir, Hampstead.

Class 24.—TWELVE PELARGONIUMS, Distinct (Nurserymen).—First, C. Turner, Royal Nurseries, Slough. Second, Dobson & Sons, Isleworth. Third, J. & J. Fraser, Lea Bridge Road. Fourth, T. Windsor, Nurseryman, Hampstead. Extra Prize, J. Burley, Limsfield.

Class 25.—SIX FANCY PELARGONIUMS, Distinct (Amateurs).—First, T. Bailey, Amersham. Second, J. Weir, Hampstead. Third, J. James, gardener to F. W. Watson, Esq., Isleworth.

Class 26.—NINE FANCY PELARGONIUMS, Distinct (Nurserymen).—First, C. Turner, Royal Nurseries, Slough. Second, J. & J. Fraser, Lea Bridge Road. Third, Dobson & Sons, Isleworth. Fourth, T. Windsor, Hampstead.

Class 27.—NINE SPOTTED PELARGONIUMS, Distinct (Open).—Prize, C. Turner, Royal Nurseries, Slough.

Class 28.—NINE VARIEGATED BEGONIAS, Distinct (Open).—First, J. Veitch and Son, Exeter and Chelsea. Second, W. Lakeman, Hendon. Third, A. Henderson & Co., Edgeware Road. Fourth, B. S. Williams, Holloway.

Class 29.—SIX TREE FERNS, Duplicates admitted. (Open).—First, J. Veitch and Son, Exeter and Chelsea. Second, C. Hutt, gardener to Miss Bardett Coutts, Highgate. Third, J. Standish, Bagshot.

Class 30.—TWELVE EXOTIC FERNS (Amateurs).—First, J. Stone, Tottenham. Second, R. Baillie, Harrow Road. Third, H. Lavey, Fetcham, Surrey. Fourth, S. M. Carson, Cheam.

Class 31.—TWELVE EXOTIC FERNS (Nurserymen).—First, B. S. Williams, Holloway. Second, J. Veitch & Son, Exeter and Chelsea. Third, R. Sim, Foot's Cray. Fourth, Milne & Co., Wandsworth Road.

Class 32.—SIX ANGIOCHILUS AND VARIEGATED-LEAVED ORCHIDS (Open).—Prize, J. Veitch & Son, Exeter and Chelsea.

Class 33.—THREE TUBEROUS TROPEOLIMS, trained. Distinct. (Open).—No competition.

Class 34.—NEW OR EXTREMELY RARE PLANTS IN FLOWER.—First, R. Warner (Laelia grandis) S.K. Second, J. Pibean (Dendrobium sp.) S.B. Second, J. Veitch & Son (Stenogaster concinna) S.B. Second, M. Lindén, Brussels (Camp. lobortus pyrophylla) S.B. Third, E. & G. Henderson (Convolvulus mauritanicus) M. Third, J. Veitch & Son (Mimulus cupreus, M. and Calceolaria bellidifolia, M.)

Class 35.—HARDY ORNAMENTAL PLANTS.—First, J. Standish (Sciadopitys verticillata) S.K. First, J. Veitch & Son (Libocedrus tetragonus) S.K. Second, J. Standish (Retinospora obtusa, S.B., and Thujaopsis dolabrata, S.B.) Second, J. Veitch & Son (Acer polymorphum atropurpureum) S.B. Third, J. Veitch & Son (Thuja pygmaea, M., and Cryptomeria sp., Japan) M. Third, J. Jackson & Son (Juniperus drupacea) M. Third, J. Standish (Retinospora obtusa, var. M., Podocarpus variegatus, M., Aucuba japonica, M., and Bambusa variegata, M. Third, J. Veitch & Son (Ficus sp.) (Vancouver's Island) M.

Class 36.—WARDIAN CASES FILLED WITH PLANTS.—First, J. Veitch and Son, Exeter and Chelsea. Second, J. Standish, Bagshot. Third, R. Baillie, gardener to W. C. Carbonell, Esq., Harrow Road.

Class 37.—MISCELLANEOUS (for Plants not specially named).—First, J. Veitch & Son, Exeter and Chelsea. First, Carl Petersdor, Kensal New Town. Second, J. Standish, Bagshot. Second, W. Paul, Waltham Cross. Second, H. Lavey, gardener to E. A. de Grave, Esq., Fetcham, Surrey. Second, J. Standish, Bagshot. Second, J. Veitch & Son, Exeter and Chelsea. Four Seconds, M. Lindén, Brussels. Third, M. Lindén, Brussels. Third, B. S. Williams, Holloway. Third, R. Baillie, gardener to W. C. Carbonell, Esq., Harrow Road. Fourth, J. Burley, Limsfield, Surrey. Fourth, C. Turner, Slough. Extra Prize, J. Standish, Bagshot; Paul & Son, Cheshunt; Dobson & Son, Isleworth; Ivory & Son, Dorking; C. Leach, Clapham Park; B. S. Williams, Holloway; T. Baines, Cheshire.

FRUITS.

Class A.—COLLECTION OF FRUIT (nine dishes of six distinct kinds).—First, T. Ingram, Royal Gardens, Windsor. Second, A. Henderson, Tientham.

Class B.—PINE APPLE (the best Queen).—First, T. Bailey, Amersham. Second, T. Young, gardener to C. Bailey, Esq. Third, R. Ruffett, Brocket Hall, Herts.

Class C.—PINE APPLE (the best Cayenne).—First, T. Page, Streatham. Second, T. Ingram, Frogmore. Third, C. F. Harrison, Weybridge.

Class D.—PINE APPLE (any variety, not Queen or Cayenne).—First, T. Young, gardener to C. Bailey, Esq. Second, R. Ruffett, Brocket Hall, Herts. Third, T. Bailey, Amersham.

Class E.—GRAPES, Black (Single dish).—First, W. Hill, Keele Hall, Stafford. Second, C. Little, gardener to A. Darley, Esq., Slough; J. Fleming, Clevedon. Third, J. Drevitt, gardener to Mrs. Cabitt, Dorking; G. G. Wortley, gardener to the Hon. P. Carey, Norwood; M. Henderson, Ashby-de-la-Zouch. Extra Prize, H. Payne, Cheshford; G. Tillyard, Stanmore; T. Frost, Aylesford.

Class F.—GRAPES, White Muscat (Single dish).—First, H. Baker, Leicester. Second, R. Ruffett, Brocket Hall, Herts. Third, J. Standish, Bagshot. Fourth, R. Turnbull, Woodstock.

Class G.—GRAPES, White, not Muscat, (Single dish).—First, W. Hill, Keele Hall, Stafford. Second, J. Allport, Nantwich. Third, F. W. Durrant, St. Neot's; J. Cross, Leicester. Extra Prize, T. Bailey, Amersham.

Class H.—PEACHES (Single dish).—First, A. Henderson, Trentham. Second, A. Sanders, gardener to Sir H. Meux, Theobalds; J. Fleming, Clevedon. Third, C. Little, gardener to A. Darley, Esq., Slough; F. W. Durrant, St. Neot's. Extra Prize, J. Peacock, Luton; J. Cross, Airedale.

Class I.—NECTARINES (Single dish).—First, M. Rochford, Tottenham. Second, J. Peacock, Luton. Second, A. Henderson, Trentham. Third, W. Hill, Keele Hall, Stafford. Third, S. Evans, Nuneaton. Extra Prize, J. Gates, Stoneleigh Abbey; C. Little, gardener to A. Darley, Esq., Slough; T. Rawbone, Stone, Stafford.

Class J.—FIGS (Single dish).—First, J. Cross, Airedale. Second, S. Snow Silsoe, Beds. Third, R. Ruffett, Brocket Hall, Herts.

Class K.—CHERRIES (Single dish).—First, A. Henderson, Trentham. Second, S. Evans, Nuneaton. Third, T. Jackson & Son, Kingston.

Class L.—STRAWBERRIES (Three dishes, distinct).—First, R. Smith, Twickenham. Second, R. Turnbull, Blenheim. Third, F. W. Park, Grove Hall, Notts. Extra Prize, A. Ingram, gardener to J. J. Blandy, Esq., Reading.

Class M.—STRAWBERRIES (Single dish).—First, R. Smith, Twickenham. Second, T. Ingram, Frogmore. Third, F. W. Park, Grove Hall, Notts.

Class N.—STRAWBERRIES IN POTS (Six plants).—First, R. Smith, Twickenham. Second, W. Kaile, gardener to Earl Lovelace, Ripley. Extra Prize, T. Reid, Sydenham.

Class O.—MELONS, Green-fleshed.—First, J. Meredith, Garston, near Liverpool. Second, T. Frost, Preston Hall, Kent. Third, Rev. T. Phillipot, Turo. Extra Prize, A. Sanders, gardener to Sir H. Meux, Theobalds; W. McLellan, Barnet.

Class P.—MELONS, Scarlet-fleshed.—First, T. Frost, Preston Hall, Kent. Second, T. Kempster, gardener to Edward Greaves, Esq., Barford, Warwick. Third, J. Meredith, Garston, near Liverpool.

Class Q.—VINES in pots (Four Plants).—First, A. Sanders, gardener to Sir A. Meux, Theobalds. Second, G. Masters, gardener to the Earl of Maccles-

field, Tetsworth. Third, J. Standish, Bagshot; C. Hutt, gardener to Miss Burdett Coutts, Highgate.

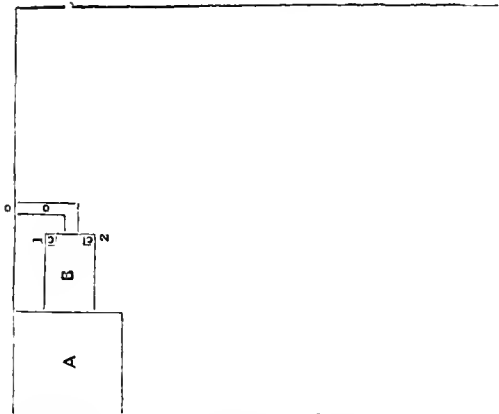
Class E.—MISCELLANEOUS.—Prize, J. Standish, Bagshot (Grapes). Prize, J. Standish (Jingam's Prolific Grape). Prize, J. Luscombe, Kingsbridge (Oranges and Lemons). Prize, T. Lunt, Greenock (Apricots). Prize, H. Payne, Chelmsford (Black Hamburgh Grapes). Prize, J. Henderson, Trentham (Trentham Black Grapes). Prize, W. Kaile, Ripley (Muscat Citronelle Grapes). Prize, R. Crawshaw, Meithyr Tydvil (Bananas).

SPECIAL PRIZES OFFERED BY C. W. DILKE, ESQ., V.P.R.H.S.—First, T. C. March, Lord Chamberlain's Office. Second, Lady Rokby, Montague House. Third, Lady Caroline Kerrison, 140, Piccadilly. Fourth, Elkington and Mason, 21 and 22, Regent Street. Highly Commended, Lady Trowbridge, 8, Prince's Gate.

KIDDEAN MODE OF HEATING.

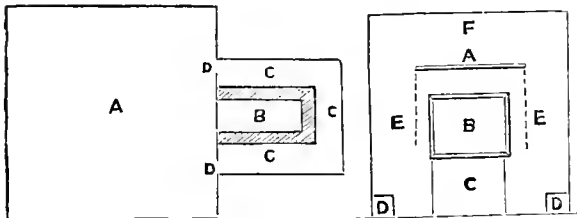
At page 99 of No. 6, a correspondent describes his application of this mode of heating to a small greenhouse. In answer to our request for further information he writes as follows:—

GROUND PLAN OF GREENHOUSE.



- No. 1.
A Stokehole.
B Flagstone, forming the top of the air-chamber.
C Openings from the chamber for the hot air to enter the house.
D Flue and chimney.

GROUND PLAN OF STOKEHOLE AND FURNACE. FRONT ELEVATION OF FURNACE.



No. 2.

No. 3.

- A Stokehole.
B Ash-pit.
C Air-chamber.
D Openings to admit cold air into the chamber. These might be fitted with sliding-doors, and so regulate the supply of hot air to the greenhouse.
- A Iron plate forming the top of the furnace.
B Furnace door.
C Ash-pit.
D Openings for the cold air to enter the chamber.
E Showing how the hot-air chamber surrounds the furnace; the dotted lines being the furnace sides.

"No. 1 is the house showing the partition. No. 2, the ground plan of the furnace, air-chamber, &c., and No. 3 is the front elevation of the furnace and chamber: Of course any one else who applied this system of heating would have the fireplace outside, and in a larger house it would be as well to have only a small opening as at c1, in plan No. 1, and from c2, to carry a flue of drain tiles to the other end of the house. The hot air would then be more equally distributed. In a larger furnace than mine both the top of that and of the chamber should be arched, though, with a furnace of brick altogether, the heat could not be got up so rapidly as an iron top would do it. I hardly know what fuller details to give you. The only explanation I ever had of the Kiddean system, was that in your Number of the 29th of January. The whole affair seems so simple, that I cannot make out how any one can well help understanding it.

"What do you think of the following mode of striking cuttings? I have been most successful with it. Crock the pot quite one-

third full; put a large piece at the top of the crockery, so as to prevent the earth getting amongst the drainage; then an inch or two of very rich leaf mould; lastly, a thick layer of silver sand. Put the cuttings in the sand, and give a moderate watering. Stand the pot in a saucer large enough to take a bell-glass that will cover the pot, and leave 2 inches or 3 inches space above the pot. Now pour an inch or so of water into the saucer, and your cuttings will not want even looking at until all are struck. The only precaution necessary is to see that the pot is crocked above where the water in the saucer reaches. There is no evaporation from the cuttings—they never flag, and, from my experience, I should say never miss rooting. Mind, I am not recommending this to those who can have frames and bottom heat and all sorts of appliances, and who can be always looking after their plants; but to those who, like myself, have sometimes to leave their plants to take care of themselves for a day or two; because, after the cuttings are once in, they require no attention until they are fit to pot off.—W. A."

[We have no doubt that the plan of the stove will answer well, and are much obliged for the plans and descriptions sent, which will, we doubt not, be useful to many. We begin to doubt of the great economy for large houses, if drains, &c., must be used for regulating the heat. For real economy in moderate-sized places, nothing yet seems more economical than brick stoves as used by Mr. Rivers, and lately described by Mr. Fish. He does a great deal of work with them, without the necessity of an air-chamber at all.

Your plan of propagating is good for softwooded plants; but we would do without the leaf mould above the drainage. Many cuttings would get miffy on reaching it.]

POLMAISE SYSTEM OF HEATING.

YOUR correspondent "E. H." says he believes that the usual objections to Polmaise are—"1. Waste of fuel. 2. Burning the air by the excessively hot surface required. 3. Splitting the furnace."

I have used Polmaise regularly for ten or twelve years, and have experienced none of these bad effects. My two stores, made of wrought iron, have never required any repairs, except fresh firebricks, and are, I believe, as good as when they were put up. The consumption of fuel is very small; and as regards "burning the air," I consider it very bad practice in Polmaise to have a very hot surface.

But though I differ with your correspondent on these points, I quite agree with him that long flues, or air-drains, are unnecessary. In Polmaise nothing is needed but a drain close by the stove going down to the bottom of the hot-air chamber, and an outlet at the top of the chamber to admit the hot air into the house.—W. C.

HOW TO SHARPEN LAWN-MOWING MACHINES.

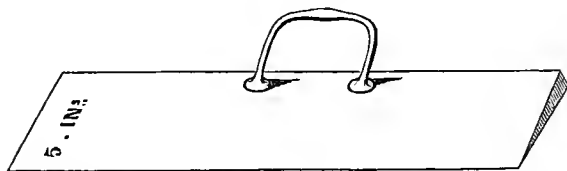
I HAD occasion to visit Macclesfield a few days ago, and, as usual, took a stroll into the beautiful public park there. The intelligent curator, Mr. Middlebrook, received me very kindly, and walked round with me. Every part of this People's Park was in excellent order, and I was very glad to find the shrubs had not suffered so much from the severity of the past winter as they have done in many localities in the neighbourhood. This exception may be accounted for by the fact of the soil being of a poor, sandy nature on a gravelly subsoil, and the elevated table-like character of the land. Common Laurels, indeed, with few exceptions, were killed down to the ground, and also *Laurustinus* and *Aucubas*; but Portugal Laurels were only a little touched, and most of the Coniferous tribe had escaped. I was particularly struck with the beauty and hardihood of the *Pinus austriaca*, it being as green as possible, and not a leaf injured. Even the young shoots had not suffered by the smart frost of the night of the 12th of May last. This beautiful tree is truly desirable, and I find it thrives best of any of the tribe near large, smoky towns. I can recommend it to every one about to plant. The common Scotch Fir is certainly not so hardy as this species. As a shelterer to tenderer kinds I know no tree equal to it.

The part of the park used as a bowling-green was almost as smooth as a planed board, and in conversation with Mr. Middlebrook, he expressed his surprise that none of the writers of THE

JOURNAL OF HORTICULTURE had ever given instructions how to sharpen mowing machines. I replied that in my case at least, not having written the instructions was because I did not know how to sharpen the machines. No doubt, I remarked, many gardeners would be glad to have instructions on that point; and if he would tell me how to do it I would write down his instructions and send them to the office. Forthwith he had a machine brought out and showed me how he performed the operation. I took down his remarks, and now copy them out for the benefit of our readers.

Previously, however, to going into the subject, I would remark that many a gardener has given up the use of these machines on account of not knowing how to sharpen them. "Give me my scythe again," he said, "I can sharpen it by whetting; but when this machine gets out of order I have to send it to a machinist to sharpen and put to rights, and even then it is soon out of order again, so I think the scythe after all is the best tool for lawn cutting." This I am sure is a great mistake, and I trust I shall make the sharpening of this useful instrument, the lawn-cutting machine, as easy to manage as whetting a scythe.

To proceed, then. Place the machine handle under the lower bar of a fixed hurdle or under a pair of stakes placed crosswise thus X. When in that position the cutting parts will, of course, be swung clear off the ground. Then take off the one wheel from the side where there is a hole to receive a handle, fasten that handle in, unscrew the top screws, and screw up the bottom screws just enough to admit a flat piece of iron with a handle made expressly for this purpose (see cut). Thrust this flat iron



The machines vary in width, so the length must be the same as that of the spiral knives. Thickness of the iron about the same as a halfpenny, brought to an edge in front.

between the spiral knives and the flat knife below them. Apply to it a mixture of superfine emery (no other kind will do) and sweet oil; then screw down the spiral knives pretty tight to it, and with the handle turn them the contrary way to that which they turn when cutting the grass. Continue the turning until an even sharp edge is produced on all the spiral knives—an operation that will not take more than five minutes unless the knives are very much out of order. This sharpening should be done frequently. Mr. Middlebrook said, supposing the machine is used every day, it would need sharpening once a week.

The use of the flat piece of iron is to preserve the lower flat knife or blade which the sharpening process would soon wear away.

Sometimes a stone, or, may be, more, get in between the knives and cause an indentation, or, as machinists term it, a buckle, on the flat knife. To remedy this, pack sufficient thick brown paper under it, and screw it up till the indent or buckle is even with the rest of the blade. This packing will keep it right till a fresh stone gets in, but with care and constant rolling such misfortunes will be avoided.

Such were the instructions my friend gave me. Let any gardener that has mowing machines that require sharpening try the plan. He may not succeed the first time, but let him try again, and by perseverance he will succeed. It is difficult by description to tell how to perform any operation. If I was to describe, for instance, the operation of whetting the scythe, even that, simple as it seems to an old hand, would require long practice before the tyro would become an expert whetter.—T. APPELEY.

A GLASS HOUSE FOR MANY PURPOSES.

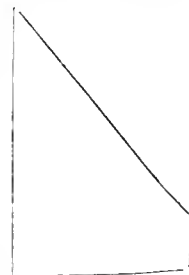
I WANT to grow Cucumbers; I want to preserve a few plants in winter—principally bedding-out plants, and, if required, I want to be able to raise a few seeds which require heat. I am willing to do without the last if it is impracticable; but I should like to combine the first two wants. I do not want to go to a very great expense, nor would it be wise to do so even if I could afford, as we schoolmasters are often "here to-day and gone

to-morrow;" but I certainly do aspire to a flued pit or very small house. Whatever it be, I should like it to contain about 100 square feet superficial. The situation it would occupy backed by a Privet and Thorn-hedge. If the house was moveable, and at the same time durable, I should prefer it. Will you kindly advise me as to which will be the better—a pit or frame, or a small house, the best means combined with cheapness of heating it, the best plan of building it, and anything else you may think it best for me to know?—A COUNTRY SCHOOLMASTER.

[We hardly know how to advise you to meet your various wants, and more especially as the house must be small to contain not more than 100 square feet. Instead of having a square house, however, it would be better to have one 13 feet by 8 feet, or 15 feet by 7 feet, or even 17½ feet by 6 feet or 6½ feet. We would decidedly recommend a little house in preference to a pit or frame, so far as feeling an interest in the necessary minutiae are concerned. A small pit, say 3½ feet high at back, and 2½ feet at front, and some 5½ feet wide, and 18 feet long, would be the easiest managed perhaps, as you could cover in severe weather; but then you could not get among your plants nicely in such weather. Again, a span-roofed house, or half-span would cost less for walls than a lean-to; but more for glass, and rather more for heating. Then the heating is another bore: a small brick or Arnett's iron stove, of the simplest kind, would keep all bedding plants safe with a little care; but it could not be depended on for Cucumbers at all early. Again, your combination of bedding plants and Cucumbers must proceed on the understanding that established plants of both must not be in the same house at the same time; so that you could not expect to obtain early Cucumbers, and yet keep a healthy stock of bedding plants in the same place: a compromise, therefore, must be made. A little fire heat is of importance for keeping all bedding plants over the winter. A little extra heat would also be useful in raising cuttings in spring, as well as flower-seeds requiring heat; but these should be removed or hardened off before getting drawn up weak. If, therefore, you had a shallow earth pit, a foot deep, or rather the sides raised with earth 12 inches or 15 inches above the ground level, and a turf placed along the top, and had it, say 4½ feet to 5 feet wide, and from 12 feet to 15 feet long, there you could place all the hardier bedding plants, after being well exposed to air, about the end of March or the beginning of April, and protect them with a piece of strong calico, fastened at each end to a wooden roller, to roll the calico on when removing the cloth. Heat could then be given to suit Cucumbers, and to strike young cuttings and raise seeds; and the Cucumbers could be continued until the middle of October, when they would be cleared out, and the place cleaned ready for the bedding plants, which would have been struck out of doors, as in the scarlet Geraniums, or hand-lights, as the Verbena, or rooted at once in small pots when growing in beds, as layers. If you will turn to page 177, you will perceive three modes, in addition to plans of pits previously given, by which you might carry out your plan, substituting a flue or other means for hot water.

Of these, all things considered, *fig. 40* would, perhaps, be most suitable—say 6 feet from the hedge, 6 feet wide, 18 feet long, 8½ feet high at back, and 2 feet 9 inches in front. The pathway at back would be 27 inches, the bed, stage, &c., in front, would be 3 feet 9 inches, and three or four shelves could be fastened from the back wall, and one or two suspended from the roof, to be used in winter, the door being at one end close to the back wall. Now the furnace for such a house might be at the back between the hedge and the wall; but we certainly should prefer having it inside in imitation of the plan of a correspondent the other week. After getting away

a couple of yards from the fire strong drain-tiles would do as well as anything for a flue, and they would give out enough of heat. For such a house we are convinced that a brick stove placed inside against the back wall would give heat enough in winter, and with a large evaporating-dish on the top of it would give heat enough for Cucumbers in summer; but it would not be so nice for propagating and raising seeds, unless another vessel was made to be suspended over the evaporating-basin, which would answer well so far as its size went. Of course, a flue or hot water in front would be a more tangible affair. It would be as well to agree with the landlord, to avoid all bother about foundations;



but were I resolved to gratify myself, and run no risks, I would have as much as possible of the whole affair moveable to do what I liked with it, or take it where I liked. But for this I would have a fixed roof with moderate-sized sash-bars; but for convenience of moving, though much enhancing the price, I would have the roof in four moveable sashes. We should thus proceed, then, to be independent of everybody, and not even make hardly a hole in the earth. For foundation we would have six blocks of wood 3 feet long and 5 inches square, and these we would imbed in the earth. On these we would screw our sills, 4 inches square; and on them we would mortice and pin with wooden pins the upright studs, to be surmounted with a wall-plate in a similar way for receiving rafters back and front. The back and front wall we would cover with inch-boards, either screwed separately or made into pieces to take down more easily. Width might be allowed to have the inside straight if desirable, and the outside of the studs or the outside of the boards might be covered with asphalt, and the pieces marked so as also to come off easily. A small iron stove in the centre of such a house with an evaporating-pan on the top of it, would keep all bedding plants with common care. Where more was wanted, we would have a small iron stove placed a yard from the end of the house inside, as low as could well be made, and we would also take the earth out there 2 feet or so, even though we must leave it as we found it. To give the stove more room and keep it further from the wood, we would give the stove a space of 6 feet, and put a division there, with a small door to feed it, and at the top of the stove we would have the smallest of Mr. Rivers' boilers, and have two three-inch pipes from it as flow, and one as return nearly on the same level. Any thing could be grown in such a house. Of course, if the hole could be made outside and the little fire fed from the outside all the better; but then it would not be so handy in all weathers. I think for many such little purposes a small moveable furnace and boiler cast together would be very useful, and commend it to Mr. Hughes, of Bishop Stortford, who made Mr. Rivers' small boilers for his brick stoves. If the fireplace of an iron stove is lined with brick, and the fireplace is 2 inches or 3 inches from the iron sides, and the top was a vessel of water instead of mere iron, a small fire and small concern altogether would do for such little places; one great charm of which would then be, that no stoveholes would require to be dug out, nor bricks buried in them, nor drains made to keep them dry, but furnace, boiler, pipes, walls, glass, and altogether, might be packed in a good-sized cart any day and set down where wanted.

I forgot to say that all the joints of the pipes from such a boiler would do well if made with Portland cement, and a little charcoal heat put round them will cause the cement to crack, when it is desirable to take them to pieces. The sashes might be made to move for air; but if the walls were of wood, we should prefer a few shutters made to open or slide—say three, 15 inches by 8 inches at the top of the back wall, and the same number in the front. For flues, &c., full information was given in late Numbers. If when you settle on the plan to be followed and we can further help you, we shall be glad.—R. F.]

ORCHARD-HOUSE AND VINERY MANAGEMENT.

SEVEN years since, from reading Mr. Rivers' work on orchard-houses, I decided on putting up one; and thought the wisest plan was to pay Mr. Rivers a visit, and gain all the information I could before commencing. Mr. Rivers kindly showed me over his houses, and gave me all the information I required. I then proceeded on his plan, and built one 55 feet long by 12 feet wide, 8 feet high at the back, 4 feet high in front, with glass lights in front within 1 foot of the ground, hung on pivots, all to open; a wall at the back, against which I planted three trees, and three in front on trellises in a half-circle, that the trees in front might not shade those on the wall. Two were large trees in a bearing state, and, being carefully removed, bore well the first season. The ventilation is from a door at each end, and three openings of 2 feet square at the top of the wall, but from experience since I have found a narrow shutter of 8 inches wide, hung on hinges and raised by a small upright rod of iron, with a hole punched near the bottom to put on a nail driven in the wall, may be raised any height. This shutter to be fixed on the top of the rafters, and the glass left open as far as this covers, the shutter to lap over the glass

about 1 inch to prevent drip. This I have found the best ventilation of any I have adopted. The house is never oppressively hot, as I have found others with only front and end ventilation. As my trees planted on trellis did not shade or fill up all the house, I obtained some in pots.

The year following I built another house, 50 feet in length by 12 feet in width, 10 feet in height at back and 4 feet in front, but boarded at the back instead of having a brick wall. But I do not approve of boarding so well as a wall; as in the spring, when the trees are in blossom, with a cold east wind and frosty nights, your prospect of a crop may be destroyed by a severe frost, which a good wall would effectually keep out. The trees in this house are planted the same as the first—against the boards at back and on a trellis in front, with a good many in pots where room is to be found. The aspect of this house is south-west by west, which I do not consider so good as south or south-east. The soil is also too rich, and I have some difficulty in checking over-luxuriancy and getting them into a good bearing state.

Having given a statement of my houses, I will now proceed to give an account of the produce. The first year a light crop on the large trees. Every year since a full crop on most of the trees, as they have come into a bearing state. On many a much heavier crop than most experienced gardeners would consider safe for the well-doing of the trees, some bearing upwards of one hundred, and fine fruit. Some Noblesse Peaches weighed 11 ozs.

The pot trees have also borne good crops. Last year several had five dozen on, and a beautiful sight they were—all fine fruit; and notwithstanding the heavy crop, the trees were, and are now, very healthy and luxuriant, although confined to a fifteen-inch pot and not allowed to root into the border. This year the same trees have from four dozen to four dozen and a half, as I considered them over-cropped last year. Our crop of Peaches and Nectarines last year from the two houses must have exceeded a thousand, and the prospect is equally good for a similar crop this year.

I generally commence thinning as soon as the fruits are fairly set, as I think they are less likely to drop if properly thinned early. On many trees I must have taken off nine-tenths. This crop on pot trees could, of course, only be brought to perfection by great attention and care, watering frequently with manure water, and a plentiful supply of water every day in hot weather. I would recommend to any one building an orchard-house to plant the trees in the border, and train on trellis in front and on the wall at the back, as a much greater quantity of fruit may be grown by this plan than from pot trees, and at much less labour and attention. Some of my neighbours have failed in growing a crop of fruit from pot trees, and I think from following Mr. Rivers' instructions rather too literally by giving them no water from October to February, which I find will cause the blossom-buds to break very weakly, and the greater part drop off. Another error is turning the trees out of the house in the autumn for the sake of other plants, and leaving them exposed to frost. My trees are in fifteen-inch pots, and never allowed to root into the border. The pots are all plunged up to the rim. In the spring I give them a pretty liberal supply of salt both over the pots and borders, and, judging from the appearance of my trees, consider it very beneficial. Sometimes I apply a little nitrate of soda, which is a very great fertiliser, and causes the foliage to become very dark and luxuriant.

MY VINERY.—Finding it impossible to grow Vines and Peaches successfully in the same house, I soon after erected a vinery 45 feet in length, 10 feet high at back and 4 feet in front, 13 feet in width, length of rafters 15 feet. Having made a good border nearly 2½ feet deep, with good prepared soil of loam, old mortar, a few ashes, and not an atom of real manure, I proceeded to plant my Vines inside the house 1 foot from the glass; being eight Black Hamburgs—one and two-year-old plants raised by myself, one Prolific Sweetwater, one Esperience from Mr. Rivers, and three Royal Muscadine, planted 3 feet 6 inches apart, and trained to a single rod and spurred. The Vines have flourished exceedingly well. Last year was the first season of bearing; and, from looking so well, induced me to go to the expense of heating the house with hot water, which I accomplished the early part of March, 1860. I allowed from nine to ten bunches on each Vine, thinning them severely. Fire heat was only continued during cold and wet weather. The crop ripened well, and was pronounced by good judges to be very fine. Some bunches weighed 3 lbs., and many 2½ lbs.

The Vines are remarkably strong and healthy this season, and are now carrying from twelve to seventeen bunches each, and promise to be heavier than last year. I fear this crop is too heavy for such young Vines; but they are very luxuriant, and the wood is now beginning to ripen. The Grapes will soon begin to colour, and no indication of mildew. The first remark my friends make on entering the house is, "Well, what manure do you use?" "None at all," is my reply. I have not even given them one can of liquid manure this year, as they are sufficiently strong without.

I have merely to add that I have now planted Vines at the back against the wall, which may be partially trained down the rafters between those which come up, where room is found; as I fear they may not be very productive on the wall, from being shaded too much.—W. E. BUTLER, *Lee Court, Petersfield.*

FOREIGN CLIMATES AND PLANTS.

No. 5.

As this journal is more a record of the productions of the earth than of its localities, any attempt at the description of the magnificent scenery of the Corniche road from Nice to Genoa, through which the writer has recently passed, would probably be out of place; a few cursory notes will therefore only be given.

The temperature had continued about the same as at Nice, the average of the thermometer in the shade during the day being 64°, and in the night 55°. At Milan it became considerably cooler; but on the Lake of Como the temperature again increased; and passing onwards from thence by Lugano to Lago Maggiore, great heat has been experienced—in fact, the sun has become too powerful to allow of walking out comfortably in the middle of the day. The thermometer has been at 80° in the shade in the day, and upwards of 60° at night. There has been hardly any rain for the last six weeks, but almost continual clear sunshine, so that the country stands much in need of an early fall.

The Grape Vines appear to shoot vigorously, and the bunches numerous; but in many places there are appearances of the ravages of the oidium in the past year, and sulphur is in course of application. At Lugano the ordinary wine is very inferior, and I was told the Grapes have not been good there during the last ten years.

In the palace gardens of the Prince of Monaco I observed a rather novel application of the Myrtle; it was used for edging to the flower-borders, and kept cut in, as Box is with us. It had a very neat appearance, although it seemed to be rather a degradation of so nice a plant. The sides of the roads and hills are quite gay with the profuse blossoms of the white Acacias, used in many places for hedges, and on the railway embankments. On the Lake of Como the Laburnum was in full flower, and quite wild, presenting a luxuriant appearance on the rocks down to the water's edge. It is also very abundant with the white Guelder Rose (*Viburnum opulus*) on Mont Salvatore at Lugano.

The Camellia trees (as they may be called) attain a large size in the open air by the Lake of Como, especially in the gardens of the villas Sommariva and Melzi; our greenhouse Azaleas also there flourish without protection, and are very fine. Large branches were cut and given by the gardener to visitors, as almost a matter of course; there are also fine trees of the Paulownia imperialis covered with their beautiful purple gloxinia-like blossoms.

The Banksian Roses, both white and yellow, grow in the greatest profusion, and also the Chinese Laburnum (*Wistaria sinensis*) running up to the tops of houses, and amongst the branches of the Cedar and other trees; they have been almost one mass of blossom. In some places the Banksian Roses are shorn as our quick hedges in England, and still flower all over.

For some time past the Alpine Strawberries and Cherries have been placed on the tables for dessert. At Genoa, on the 3rd of May, the garden Strawberries were in the market.

The wild flowers in the fields are in great beauty. One of the most conspicuous is the *Salvia pratensis* or Meadow Clary, which is most abundant, and attains a large size, with long spikes of purple blossoms. Sometimes variegated white and purple, Orchises as well as *Serapias* are very plentiful, and the *Narcissus poeticus* near Lugano. At Milan six bunches of Lilies of the Valley were sold in the streets for a penny. Solomon's Seal (*Convallaria multiflora*) is frequently met with, and on Mont Salvatore, near Lugano, I found the beautiful blue *Gentiana acaulis*, also *Daphne cneorum* in quantity, with the *Polygala*

chamæbuxis, and a handsome variety (lilac and yellow) of the same.

The rarer Ferns which have been met with were *Asplenium Petrarchæ* and *Pteris cretica*, at Nice; the *Asplenium fontanum* plentifully near Mentone, and sparingly at Nice; also at Mentone, *Cheilanthes odora*, and *Gymnogramma leptophylla*; at Roquebrune a fine variety of *Polypodium serratum* (almost equal to *cambricum*) and plenty of the *C. odora*. *Adiantum capillus-Veneris* is met with almost everywhere. At Lugano, the *Cystopteris fragilis*, *Polypodium dryopteris*, *P. phlegopteris*, *P. calcareum*, *Lastrea oreopteris*, *L. femina* and others; and here (*Braveno*) the *Osmunda regalis* grows very large.—E. COPLAND, *Braveno, Lago Maggiore, 27th May.*

VARIEGATED PLANTS.—In my opinion the best collection of hardy ornamental variegated plants that ever has been sent to this country by one man, and at one time, has just arrived from Japan, and are in the possession of Mr. John Standish, of the Royal Nursery, Bagshot. They were procured by Mr. Robert Fortune, the botanical collector. For making improvements in landscape gardening, or planting for artistic effect, they are a valuable acquisition. I think that after the exhibition of the Royal Horticultural Society's Gardens at Kensington Gore, this fine collection should be exhibited at the Floral Hall for two or three days, the public generally would then have an opportunity of appreciating their beauty and novelty. No lover of horticulture could but be delighted with the sight of so many rare and curious specimens. A trip to Bagshot to see that collection only will well repay for the journey.—JOSEPH NEWTON, *Landscape Gardener, 30, Eastbourne Terrace, Hyde Park.*

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE trenching of vacant ground to be carried on where required; and if manure is wanted on ground about to be planted it is best to lay it on the top after it is trenched, and then to fork it in. Keep all advancing crops in a vigorous growing state by timely applications of water in dry weather, and frequent surface stirring. *Asparagus*, to maintain the strength of the grass next year, no more of the produce should be cut; late and close cutting is one of the principal causes of weak grass. *Cauliflowers*, the plants which are now forming their heads to be watered, and mulched with short litter; this will cause them to come close and compact. *Celery*, continue to plant successional crops into trenches; the plants to be taken up with as much soil around the roots as possible, and on no account to shorten the leaves; a good soaking of water to be given immediately after they are planted. *Dwarf Kidney Beans*, a few more to be sown for succession. *Endive*, make a sowing for the main autumn crop. Plant out a few of the early sowing. *Herbs*, propagate by cuttings. The best time for cutting them for drying will be just as they are coming into flower. *Lettuce*, tie up some for blanching, and make a sowing in drills where they are to remain. *Peas*, keep up the sowing of successional crops, and do not neglect to get in a good breadth of the latest directly in drills soaked with water. No sowing after this can be relied on to produce a crop. *Potatoes*, earth up the main crops after rain; keep the ground between the rows loose. *Spinach*, sow a few rows for succession; water the drills before sowing, and again after covering them. *Scarlet Runners*, the earth to be well loosened about them, a little drawn up to the stems, and then staked at once. Continue the gradual thinning of Carrots and Onions as they may be required for use; but Parsnips, Red Beet, Salsafy, and Scorzonera should always be thinned to the proper distance at once.

FLOWER GARDEN.

Keep a watchful eye on the beds and borders, and where blanks appear let them be filled up with some of the reserved stock. Newly-laid turf to be watered, and if suffering strewn some light litter slightly over to break the sun's rays. Top the gross shoots of Roses, and peg down others where necessary, and use the garden-engine freely to disperse insects, and to feed the roots. Dahlias to be well watered during dry weather, and earwigs to be trapped as soon as possible. Roses may be budded, taking eyes from these trees which have been forced. The young wood from the same trees put in as cuttings will strike freely.

Pnt Pink pipings in light, rich soil on the north side of a wall or fence. Carnations, Picotees, and herbaceous plants, with the taller-growing bedding plants, to be staked and tied up, to prevent injury from high winds.

FRUIT GARDEN.

The recent hot weather has brought out the insect tribe in abundance, and they must be met with timely remedies. A powerful garden-engine should be kept in frequent use amongst the trees and bushes infested with aphides and honey-dew. Continue to stop, regulate, and lay in shoots of wall trees. Stop Vines, and tie in the shoots. Employ sulphur on the appearance or suspicion of mildew.

STOVE.

A little fire heat is necessary occasionally, in order to air freely, and to be enabled to continue a humid, kindly interior atmosphere, which will greatly encourage a sturdy healthy growth. Attention to be given in shading the plants from a scorching sun; to watering, syringing, and applying manure water occasionally.

GREENHOUSE AND CONSERVATORY.

When Orange and Camellia trees are kept in-doors, give abundance of air night and day; wash them frequently with the syringe, using clean water, and damp the paths and floors often. Specimen and choice plants nearly done blooming to have their faded blooms picked off, and to be well washed with the syringe; to be then placed in a cool, shady situation to recover themselves before potting, which, as before advised, should on no account take place until a fresh growth has commenced. Shading for the plants in bloom will be necessary, unless the roofs are covered with creepers. Air to be admitted freely by night in accordance with the description of plants grown, and the paths and floor to be kept damp by throwing water repeatedly over them to produce a humid atmosphere in the house.

W. KEANE.

DOINGS OF THE LAST WEEK.

In the kitchen garden hoeing, forking, and moving ground, and thinning Onions, Carrots, &c., were the principal work. The ground has as yet received only a sprinkle of rain on the surface, so that thinning, &c., has been attended with less dispatch than if the ground had been more moistened, and waiting later would be apt to injure the crop left. Watered forward Cauliflowers with manure water, and covered the ground with mowings from the lawn thick enough to keep most of the moisture in the ground; and if rain comes, what will pass through it after or during heating a little will do no harm. Find this also a capital plan for a quarter of early Cabbages in such a dry season as this has been lately. Even bedding plants would say nothing against it, if it were not for the look of the thing. Wide Celery-beds that had been filled with bedding plants to harden off were got cleared ready for the first Celery out of doors. Picked out more on borders for future transplanting. Have none, as yet, requiring earthing up as a general crop, as some people seem to have, from writings and inquiries made; and if we had a little rather forward for kitchen use, we should not think of earthing up any other in the first week in June, unless we wanted bolted heads, instead of nice, sweet, solid Celery. Stopped early Peas to cause them to swell their pods more freely, having found the Tom Thumb Peas in pots very useful and rather continuous bearing, if the pods were gathered rather closely, and not allowed to get old enough for stewing. Threw some dirty salt among Sea-kale and Asparagus, merely enough to slightly cover the ground. This not only assists the crops but is no bad thing for checking weeds.

The rains, as yet, being merely the lick of a promise, have been forced to give the most of the Strawberries a good soaking with manure water, having previously surface-stirred the ground to cut up germinating weeds and fill up all cracks, and then covering the space with long litter. Strawberries in houses frequently want water twice a-day, and most are now cleared out under protection of glass. A small border has been covered with old spare sashes. Twelve-inch pots are merely placed at back and front, some 6 feet or 8 feet apart, a rail placed on them, and the sashes lie on the rail back and front. A board 9 inches deep or so goes against the pots, back and front, which in sunny weather gives enough of air and keeps in a good deal

of heat. In sunny weather this hastens the ripening; in dull weather it is pretty well labour thrown away. It is well to fully expose if the weather is fine a day before gathering, in order to communicate flavour. Everything betokens a fine crop of Strawberries this season, and early runners for next season's forcing.

We holloaed before being quite out of the wood in speaking of the abundance of Gooseberries, Currants, and Plums last week, and their freedom from insects; for only a few days past and some caterpillars began to appear on the former, and fly on the latter. Some of the berries of Gooseberries were encrusted with fly, the ends of the young shoots began to curl up and hold hundreds in their folds; and the leaves of the Currants began to turn yellow in two or three places, and their points to be similarly affected as the Gooseberries. The first thing done was, to nip off in a basket the mere points of the Gooseberry shoots the most affected, and which of itself would be an advantage, and any redundant young shoots not wanted, and then wash bushes and trees well with lime and soot water. This has pretty well cleared off the hosts of invaders. I notice in a few places there are still some caterpillars left; and these must be looked for, shaken off and then destroyed, or the places powdered with lime and soot. The first is the best plan; for if the lime and soot are caustic enough to kill the caterpillar as well as make it drop, it is apt to affect the cuticle of the berry so much as to prevent it swelling freely and ripening kindly. Fly also appeared among Plums where the fruit was thickest, but the drenching has pretty well cured them; and picking and washing have nearly driven the caterpillars from Cherries and Pear trees, which I never knew so numerous as this season, notwithstanding the severity of the winter. Watered Figs again with manure water, which are now swelling kindly and ripening; must shorten and regulate shoots as soon as possible. Watered Peaches, &c., in pots in orchard-house, and nipped the points of the shoots, and tied, stopped, and nipped off a few leaves to expose the fruit freely in Peach-house, now nearest the fire, beginning to ripen, though no fire has been given in the warm nights of late. Thinned out a few laterals from the earlier vineries, and tied down the shoots in the late house, as the young bunches just setting and coming into bloom were getting against the glass, there being so much to do at the end of May and the first fortnight in June. Melons and Cucumbers stopped and regulated, and watered as required; and prepared for planting as soon as possible strong plants of pickling Cucumbers, Vegetable Marrows, and hope they will do better than last year. Strong plants of Tomatoes in large pots, are also crying out to get into their summer quarters. Where walls are scarce, a fence, a sloping bank, or even a south border will grow them well, if the plants are kept well thinned and stopped.

In the plant way the verandahs have been set out, and the conservatory fresh arranged, removing the whole of the Cinerarias, Primulas, Camellias, and earlier Azaleas, Geraniums, &c., and supplying with Fuchsias, Pelargoniums, Scarlet Geraniums, &c. The forwardest Azaleas were placed in a yard with the protection a good height above them of thin Nottingham netting; those just finished blooming were given one end of the conservatory to themselves, where they could be kept a little closer and have the syringe pretty freely before they made fresh growth and began to stop for flower-buds. Cytisus, &c., past their best, were placed in the open yard with the wall in front of them, just to break the force of the sun's rays for a little time, and far enough apart to permit of the syringe freely among them; freedom from red spider being essential to their healthy appearance and free flowering. Moved the last of the Camellias in pots almost done blooming to the late vinery, where the fresh growth will receive a little encouragement before the plants will go out of doors for the season. Kept potting stove and greenhouse plants as needed, and commenced potting such common things as Perilla, and small Geraniums, for summer and autumn decoration; the chief work, however, being getting forward with the bedding plants, and keeping these all right, by syringing and watering, the labour of which has been lessened since the 31st ult., by the weather being more dull and threatening to give the soaking rain that seems so loath to come. This ease from labour in watering has the disadvantage of not causing the ground to get warm so soon as in bright sunshine, and, for bedding plants especially, where not one in a hundred comes from a pot, but is lifted from an intermediate-bed and planted at once, a warm soil is a great essential to quick and healthy growth. Even in

hot days a little water will go a great way if judiciously given; for, provided the roots have enough, not a drop more should be given, as the soil becomes cooled first by the water, and then still more by the evaporation caused by it. In cases of importance, it is best to remove the dry surface soil, give the little water needed, and in half an hour or less replace the dry surface soil, to lessen evaporation and the cold produced by it. When the soil about the roots is damp enough, and young plants are still disposed to flag, a little shading or a slight dewing of the foliage is far more useful than delugings of waterings. In sprinkling, the little that falls on the hot surface of the ground rises about the foliage ere long as warm vapour. For maintaining regular unbroken beds, even in such cold stiff soil as is here, and without scarcely any filling up after once planting, I have just too little secrets, now secrets no more—the above plan as to watering, and giving almost every plant a little of the light warm compost referred to the other week, even though that should scarcely be half a handful or a quarter of one. Raising the plants from beds, instead of planting from pots with balls, is also another help, though sometimes the plants suffer more from hot weather at first. One item more as respects Calceolarias is to get them out before they are too forward. A friend told me he planted some hundreds the other day from pots and in full bloom, making a fine bed at once. I hope they may go on; but there is the risk, if the ball was not broken on the outside well, that they might cease to bloom, or cease to thrive by the middle of the autumn.

In laying such stress upon limited waterings in the above case, we wish beginners clearly to understand that it applies to such cases alone, and not to waterings in general to fully-established plants. In their case the general rule is, Water so as thoroughly to moisten the earth about the roots, and water no more until another thorough watering is needed. In such cases mere frequent surface sprinklings do more harm than good—surface roots are merely encouraged to be burned up with a powerful sun; whilst, so long as the surface of the soil is moist, the lower roots will have less chance of obtaining moisture from beneath them until the surface becomes again comparatively dry. Merely refreshing the foliage with a sprinkling is quite a different thing, and is very refreshing in the evenings of hot weather. After a slight shower, under such circumstances, even though the surface of the ground is little touched, how fresh everything looks! This is very different from watering a bed every day with the rose of a watering-pot: circumstances must, therefore, be our guide; and what I wish to impress is, the different watering new-planted-out flower-beds should receive contrasted with the deluging we should give to a quarter of strong Cauliflower plants.—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

KIDDEAN SYSTEM (*Stupid Fellow*).—This is not ripe yet for drawing. The original was a great vault made fireproof under the drawing-rooms, and 10 feet or 12 feet from the end of the conservatory, the hot-air passage rising rapidly on the slope, and the structure cost over £200 of the public money, perhaps twice as much; but it all ended in smoke, the vault was full of smoke every time the thing was set to work, and there it ended, and no one could make it work. Mr. Kidd pulled the structure to pieces, and Mr. Beaton explained how he did it sufficiently for those who understand such things to be able to make a new one. Others had better not try it till the best practical application of it is found out, and is proved by actual practice, then we shall give a drawing of it. We publish to-day drawings of the mode in which a correspondent has carried the Kiddean mode of heating into effect; this may aid you.

GERANIUM LEAVES (*Sarniana*).—Your variegated leaf is very pretty indeed, and comes very near the Queen's favourite, and the whole class of tricolor-leaved Geraniums, one of the three colours being pink or crimson; but it is very difficult to transmit the markings by crossing. Your other leaf is, we think, that of the type of Mangles Variegated, and, if so, that kind will not cross in England; but give it all the chances you can, and let us hear how you succeed with it in the climate of Guernsey.

CLAY ON A CLAY SUBSOIL (*R. W.*).—Yours is the worst of bad soils for gardening. The most effectual way to improve it is to burn a full spad's depth of the surface, and dig in the ashes thus obtained with the spade's depth of soil next below. This with the admixture of bricklayer's limy rubbish, coal ashes, and road scrapings, if from flints mixed with the soil, will improve its staple, and, as it is well drained, ought to give you good crops.

HINT TO MR. BEATON (*Ignotis*).—*Hippocrepis comosa*, neat habit, bright colour, very fragrant. Much obliged. The seed-pods are also most curious, queer-looking, crooked horns. Please send us a pod or two when the seeds are ripe. It is a pretty, dwarf yellow pea flower, and grows best on our chalky downs.

RARE EDGING PLANT (*H. X. W.*).—The little plant which makes you "a very neat edging," is the oldest we know. We have not seen it since May, 1821. Mr. N. Niven, now of Drumcondra, near Dublin, had it then in Belladrum, above Inverness, and he had it in a damp, low situation, intensely shaded by trees. He said it would grow only in that way. Pray tell us the exact circumstances under which it has made the neat edging; for it is the prettiest leaf of all the hardy decorative plants we know, and an edging of it must look as if made all of Cyclamens. The old garden name of the plant was Virginian Asarabacca, and it is the *Asarum virginicum*. The flower has no petals; but the calyx, which is in three parts, is thick and leathery, of a dark purple colour, and is not seen on account of the leaves. If you would kindly send a root or two of it, we will put it into the hands of Mr. Beaton, who would put us, probably, in the way of having a very neat edging of it.

TREATMENT OF NEGLECTED VINES ON A WALL (*G. S. N.*).—Without seeing your Vines it is almost impossible to advise you what to do with them. From what you say, we conclude that you can do nothing to the roots except stirring the surface, and giving a good soaking of tepid liquid manure twice or three times during this summer, and keeping the surface mulched. From the fact that the Vines are unfruitful, we are led to think that there has been too much wood left annually. Should that be the case, thin out now the young shoots very severely, cutting off close to the old wood. Go over the whole of the Vines, and just leave as many young shoots as will have room to expand their leaves; and leave portions of wall exposed to be warmed by the sun. Let the shoots that are left be stopped at the fifth leaf, or thereabouts; and as the laterals break at the sides, stop them at the first joint. Stop these again, and again during the summer, and keep each young shoot close nailed to the wall: the object of this pruning, stopping, and training close to the wall is, to fill the buds, and ripen the wood, without which any Vine will be barren for ever. The Vine on the south-west aspect should have the bricks taken away from the stem, a sufficient distance to allow the manure water to get down to the roots. Are you sure the borders are dry at the bottom? It is very likely Mr. Appleby will shortly give instructions how to treat old Vines where the owner wishes to preserve them; but the operation of lifting them, making a fresh border, and re-planting, is best done in the autumn, so you will have time enough before you. In the meantime, summer-prune your Vines, keep the shoots wide apart, and get the wood well ripened as early as you can. If there are no bunches shown already, you need not expect any this season.

ENTOMOLOGICAL WORK (*H. Jones*).—Kirby and Spence's "Introduction to Entomology," is the best elementary work we know.

WHITE HELLEBORE POWDER (*O. P.*).—Dusting this over Gooseberry bushes to destroy the caterpillars upon them, is not in the slightest degree likely to render the fruit poisonous. Washing the fruit previously to bottling it would remove every particle of the powder. We have used the powder many times. It should be recently prepared, for hellebore powder if old is apt to lose its efficacy.

BOXES FOR EXHIBITING CUT ROSES (*Rose*).—As the petals of the adjoining specimens should just touch, you had better cut a truss and give space according to their size. The same test may be applied to determine the depth, the length of the stalk does not require more than 6 inches. Have oblong boxes, made with a moveable cover; this cover or lid to have sides to it deep enough to keep the lid clear from the Roses. The lower part of the box should have a division-board resting upon a ledge of wood; this board should have holes in it wide enough to admit tin or zinc bottles through them, and these bottles should have a flat rim wider than the hole, for them to rest upon the board, and so prevent them slipping through. If the bottles fit pretty tight, so much the better; but as the board is moveable and can be lifted out, should any of the bottles feel loose they may be wedged tight with chips of wood from the under side. The lower part of the box should be deep enough to allow the bottles to hang clear of the bottom; if this were not so they would be pushed upwards, and the Roses spoiled. The box being so made, and fitted with bottles placed at such distances as to allow the Roses to be put in them so as not to touch each other, let the whole have two or three coats of paint, the last being a pleasing grass green. This ought to be done time enough to allow the paint to become perfectly dry before the day of exhibition.

RAISERS OF FLOWERS (*C. Brown*).—You must excuse us for declining to search for this information. If you refer to some old florist's catalogues you will find the names of the raisers in parentheses.

NAME OF TREE (*G. S. E.*).—It is *Pyrus aria*, the White Beam Tree. Nothing shuts out an unsightly object so soon as a trellis, and Ivy turned out of pots, which are to be had at all large nurseries, and may be planted now. We cannot name any trees, for we do not know either the soil or situation, or county even where they are to grow.

GREEN FLY ON GOOSEBERRY BUSHES (*M. K. J.*).—Syringe them with Gishurst Compound two ounces to the gallon of water, and repeat: the syringing every second day until the insects do not reappear. All of the mowing machines advertised in our columns are good. We cannot recommend florists. Tan spread over Strawberry-beds will answer for keeping the fruit unslashed.

ROCKETS (*A. J.*).—Merely the common Rockets to be obtained of any nurseryman.

ROOT-PRUNING FRUIT TREES (*Clericus*).—The best time is as soon in autumn as the fruit on the trees is ripe. Cutting the roots then—say October, will influence the trees the first season, less or more. If the trees are in a state of rest it will not influence their fruitfulness until the second summer.

GERANIUM LEAVES INJURED (*H. H. R.*).—We can think of no cause but the leaves being damp when the sun has shone brightly upon them. The sponging is a capital thing in London, but in the case of Pelargoniums the leaves should be dry before the sun reaches them. We hope the pots are not allowed to stand in saucers half full of water.

GAZANIA SPLENDENS IN POTS (*R.*).—The *Gazania* is worthy of a place in the greenhouse and the flower-bed likewise. It naturally trails, but to prevent being hurt by winds, it would be as well to have a few pegs to keep

it firm. That in the greenhouse should have a sunny spot. It will propagate as easily, or rather more so, than the Verbena. If you had a spare hand light in a shady corner, every bit put beneath it an inch or two in length in sandy soil in summer, would soon root. Small pieces also root quickly in heat in spring.

PROPAGATING DIELYTRA SPECTABILIS (Idem).—The *Dielytra* is easily increased three ways—first, when the plants are done blooming, cut up the stalks into pieces and insert in a cool shady place under the protection of a hand-light; second, when the shoots rise and are about 2 inches to 3 inches long in spring, they strike very fast in a little heat; and thirdly, by dividing the roots when at rest or just beginning to move, like a dahlia root.

VARIETIES (Jin-crack).—We would not advise planting Vines in tan however old. It contains too much acid. We suspect either that the Vine roots have descended deeper than you suspect, or that the wood was imperfectly ripened last autumn. Lessen growths this season by keeping the Vines pretty free of laterals, and give a little extra fire heat with plenty of air in autumn in order to harden the wood well before the leaves fall. Collect the snails after you have laid down brewer's grains or leaves of cabbage or lettuce smeared with fat, to entice them to congregate in heaps. Pot your Camellias either as soon as they make fresh growth, or immediately after they are stopped lengthening, which you will know by the hardness of the terminal bud. The best to suit your purpose as a climber we should judge to be *Cobaea scandens*.

MILDEW ON VINES (Curate).—Although it still appears on your Vines, yet it cannot progress if you keep the Grapes and leaves dusted with flowers of sulphur. We cannot advise more as to your Vines than painting your heating medium with a creamy mixture of sulphur and lime; but it a flue, putting none on for three or four yards from the furnace, and even hot water should not be above 170° in the pipes, if you put on them the sulphur mixture. With your copious watering, if you had not given so much air, we should have attributed the seizure to too close and damp an atmosphere. You must just continue the dusting, and giving plenty of air and less moisture in the air of the house.

PLANTING OUT HERBACEOUS CALCULARIA SEEDLINGS (Idem).—You may with propriety set or plunge your *Calcularia* plants in pots under a north wall in sand or coal ashes as you propose; but we would rather propose making a raised border of silver sand, peat, leaf mould, and loam, in equal proportions, and turning out the plants in it. If healthy, now and kept healthy, they will finish you with plenty of sucker-like young plants in the autumn.

GRAPES SHANKING—PROPAGATING-PIT (H. A. L.).—Such effects on Vines are produced by too heavy crops, and from the roots being too deep. Either a dung-heated frame or a flued pit is best, accordingly as best managed. A nice pit would be 3½ feet high at back, and 2 feet 3 inches in front, and a foot below the ground level, and 5½ feet wide; walls 9 inches thick, heated by a flue 9 inches wide, and two bricks on edge for the sides. We have recently told everything about making flues, using cement pipes, &c. For comfort and convenience we would recommend a span-roofed little house, or even one facing the south, with a lipped-roof, so that you could do everything under cover. Thus supposing you had a space 9 feet wide, you might sink it a little under the ground level, or have it on the surface level, which would be least trouble; form two side walls 3½ feet high, and a ridge-board 7 feet high, rafter sash-bars 2½ inches by 1½ inch would be strong enough, 15 inches apart to receive glass of that size, with either a double ridge-board, with ventilators between them, or every other square in the ridge made to open. Two side walls inside would form your pathway 2 feet 6 inches wide, leaving rather more than 3 feet for a bed on each side. The flue could enter at one side below the bed, go round the other to the chimney, a concrete or loose bed over the flue would enable you to do anything with it as to heat or propagating, but such a flue in such a house if 20 feet long, ought to be brick-on-bed for a quarter of its length. The mode of concreting or nailing open rubble has frequently been told. In such a house a few ventilators should be secured in the side walls.

EARTHING-UP POTATOES (G. L.).—This practice is objectionable because it retards the ripening of the crop. If the earth is drawn up to the stems in a high pyramid, as is usual, the retardation is a full fortnight, and is evidently occasioned by the plant pushing forth fresh root-growth into the soil thus raised about the stems. The earlier the crop of Potatoes ripens the more likely is it to escape the murrain; therefore, the check thus occasioned ought to be avoided. If your Potatoes are planted shallowly there would be no objection to drawing an extra inch depth of soil up to the stems, so that the tubers may not appear through the surface.

FUMIGATING PLANTS.—*Rose Garden* writes to us as follows:—"Some time ago, one of your correspondents gave us his invention of a plan for smoking plants in borders, and promised to inform our readers how to smoke standard Roses. Now, although I have been looking very anxiously, week after week, I have not yet seen his promise fulfilled. Could you give us any plan, as my Roses are now beginning to be terribly infested with the horrible green fly? Will your correspondent send us his promised communication?"

SPERGULA MILIFERA (A Correspondent).—It grows as well now as at the first on the strongest clay land, and not better than ever it did on all light lands. Mr. Carter has taken to the *Spergula* Nursery, and now prefers the saginoides for light soil, as the old *Spergula* cryptogamist pointed out long ago, and by seeds is the best way to raise it.

YOUNG MELONS TURNING YELLOW (P.).—This and their subsequent falling off are probably occasioned by the roots being too wet and too cool.

VARIETIES (Belgash Subscriber).—You will have seen that we recommend white hellbore powder for the gooseberry caterpillars. Build an ice-house any time so as to be ready for the first ice that is formed next winter. You will find directions for constructing an ice-house in the *Cottage Gardeners' Dictionary*, and by Mr. Fish, in our No. 558, which you can have from our office for 4d., free by post. Your bookseller is in fault; every copy required can be had at our office before twelve o'clock on the day of publication. We are obliged by the offer of translation, but we have it done already.

CONVERTING AN AQUARIUM INTO A FERNERY (Emma).—It will require a glazed top, and we recommend it to be an eight-sided cupola to correspond with the octagon form of the aquarium. If made moveable it will be very effective for ventilation. Flockwork is a great improvement to a miniature fernery. Messrs. Veitch & Son had a magnificent example of one at the Horticultural Society's fête on Wednesday last. Miniature ruins, which are sold ready made in Covent Garden Market, are very effective.

BUILDING A LEAN-TO GREENHOUSE (An Old Subscriber).—See whether the directions in Vol. XXIII. p. 347 will not suit you. By referring to that, to Vol. XIII. p. 59, and to "Greenhouses for the Many," any carpenter could construct the one you need.

TEA ROSE ACROBA (B. R. Cant).—The blooms sent are very beautiful, and the Rose is unknown to us. It seems allied to Cloth of Gold and the Noisettes. The colour a soft creamy yellow, very much that of the cream of rich milk, the shape good, and the foliage equal to that of Gloire de Dijon. If as you say, it is lost to the trade, it will be conferring a boon on Rose-growers to let it out again; and as the blooms sent are gathered from a plant in the open air, its hardness would still further enhance its value. The small Apple was in excellent condition, and in our opinion is a very valuable sort, as well for its first-rate quality for dessert use as for its late keeping.

NAMES OF PLANTS (J. L. S.).—Your "plant, with scent like the onion," is the *Ransoms, Allium ursinum*. It is very common, and is detested by cowkeepers; for if in pastures where their cows feed, it gives a garlic-like flavour to their milk.

FLOWER SHOWS FOR 1861.

- JUNE 11th. ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY. (Plants and Flowers.) Sec., W. R. Hobbs.
JUNE 12th and 13th. YORK. Sec., J. Wilson.
JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. Sec., E. Carpenter.
JUNE 25th. ROMFORD. (Plants, Flowers, and Fruit.) Sec., A. Cooper, Romford.
JULY 3rd. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.
JULY 6th. CRYSTAL PALACE. (Rose Show.) Sec., W. Houghton.
JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) Garden Superintendent, G. Eyles.
JULY 18th. TOWCESTER FLORAL AND HORTICULTURAL SOCIETY. Sec., T. B. Rodhouse, Towcester.
JULY 18th. PRESCOT. Sec., J. Beesley.
AUGUST 9th. BELFAST ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Carruthers.
AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.
SEPTEMBER 2nd. HICKMOSDWIKE. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Hickmosdwike.
SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.
SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) Garden Superintendent, G. Eyles.
SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.
NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) Garden Superintendent, G. Eyles.
NOVEMBER 12th and 13th. STONE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.
NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

POULTRY, BEE, AND HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

- JUNE 19th. TROENE. Sec., Mr. Joseph Richardson. Entries close June 12th.
JUNE 19th, 20th, and 21st. COALBROOKDALE. Secs., Messrs J. B. Chuue, and Henry Boycroft, Coalbrookdale.
JUNE 25th. ESSEX. Sec., Mr. W. R. Emson, Slough House, Halstead, Essex.
JUNE 28th. DRIFFIELD. Sec., Mr. R. Davison. Entries close June 22nd.
JUNE 28th and 29th. TAUNTON. Sec., Mr. Charles Ballance. Entries close June 17th.
JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. Sec., Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.
JULY 18th. PRESCOT. Sec., Mr. J. Beesley.
AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. Sec., Mr. W. Houghton.
SEPTEMBER 3rd. POCKLINGTON (Yorkshire.) Sec., Mr. Thomas Grant. Entries close August 26th.
SEPTEMBER 24th. BRIDGORTH. Sec., R. Taylor, Bridgnorth.
DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.
DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., Mr. W. Houghton.
N.B.—Secretaries will oblige us by sending early copies of their lists.

RULES FOR SELECTING DORKINGS.

If your breed be Dorkings, choose them with large limbs and wide backs. When the chicken is held with the left hand, place the right flat on the back of it, resting on the hip bones, the width there will be a fair test of the size of the bird. A bird wide there is generally good elsewhere; while, on the other hand, it is impossible that a narrow-backed bird can either be full in hand, or satisfactory in the scale. It may not be out of place here to say, that although great weight is more than desirable in this breed, yet that more fact is not enough to gain prizes. Weight should be the result of size. The point has often been mooted, and it will no doubt be so again. It began in the early days of Cochins, and caused the poor birds to be fed on meat of every kind, to the detriment, if not the destruction, of their powers and usefulness as breeding-stock. Poultry shows are not held for the exhibition of fat stock. Choose chickens with well-developed, but not remarkably large, fifth toes and claws, with white legs; but it is not essential that they be of that dead milk-white that some would have. You may

go through many of the best yards in the kingdom, and you will not find one fowl with a faultless white leg, as a sort of brown or sepia tinge is common among them. If this covered the whole leg it would unquestionably be a disqualification; but it does not, it only stains the edge of the scales that cover the leg. The white leg is declared to be essential as distinguished from a black, blue, willow, or yellow. It is very desirable the breast should be straight. In choosing cock chickens take those that have full-sized legs, large round heads, strong beaks, and full eyes; choose them lengthy. Avoid anything like maturity in a chicken from which you expect growth. It should be as loose as a tall boy of fifteen.

Dorkings, save in the Silver Grey classes, are not tied to colour; but it is nevertheless quite as well to have those that are pleasing as those that are offensive to the eye; the best bird—that which limits every quality—is only good enough to win, and, therefore, even a very trifling defect, or the lack of some advantage possessed by a competing pen, may turn the scale.

Again, although it is not essentially necessary the hens or pullets in a pen of Dorkings should be the exact counterpart of each other, yet it is well they should be as much alike as possible. We do not believe in yards where all the pullets are so much alike you cannot tell one from the other; that can only be accomplished where they “breed well, and kill well.” Our experience tells us the white speckle will have its way. It comes on the back of the Silver Grey pullet, and on the breast of the cock; the latter also often shows the white feather in his tail. We sometimes buy the draft birds of one of our most successful Silver Grey breeders, and when we see the mixture of colour among them we always think of Brummel’s valet, who being met on the staircase of an hotel with a supper-tray full of scarcely-tumbled cravats, and being asked what they were, said, “They are our failures.” It is, then, advisable to keep colours that will help to successful exhibition. To accomplish this desirable end, everything in the poultry-yard should be made subservient to it, inasmuch as in the July arrangements the December and January contests should be borne in mind—not to make them anxieties, but to avoid the unavailing regret afterwards; the fatal, desolating “too late,” when the pen cannot be satisfactorily formed. “If I had saved those two pullets, or had not killed that young cock, I could have done better.”

While on the subject of Dorkings, we may as well advise any one who may breed a very good pen of rose-combed chickens to take care of them. There are yet people who doubt the purity of them, but the same nail up carefully-concealed horseshoes in different parts of their houses, and in solitary spots like to put a running stream between themselves and an old woman. In general breeding, do not discard a cock for white-spotted breast, nor for white tail, nor for clouded or dark hackle and saddle. There is no colour, and, therefore, none are barred except white and black. In these, as in other breeds where size is important, the birds must be always well fed; they must never be allowed to fall off. A chicken that has gone back, and recovered its ground, is, when convalescent, just where it was when it fell ill. That which has gone on uninterruptedly is all the time a-head. Scanty feeding is false economy; overfeeding is wicked waste. Both render success impossible.

BATH & WEST OF ENGLAND AGRICULTURAL SOCIETY’S MEETING.

HELD AT TRURO, CORNWALL.—June 4th, 5th, and 6th.

THE Bath and West of England Agricultural Society have now been for a number of years past notorious for the excellence of the poultry competing at their annual exhibitions; and although the selection of a show ground so distantly situated as Truro is from the yards of most of our principal breeders, had a tendency to limit the numbers of entries, we have great pleasure in stating, that the quality of the specimens of every variety of useful poultry exhibited, even surpassed all former meetings of this Society. This marked improvement in the utility of the poultry, was, indeed, the universally acknowledged fact among all present.

Messrs. Martin, Lane, and Fowler, who obtained the prizes for Black Spanish fowls in the consecutive positions in which we have named them, never exhibited better specimens of careful breeding.

The *Dorking* class comprised every variety of colour, which, of course, gave but remote opportunity of success to the White

ones; still it will be seen Mrs. Fookes, of Whitechurch, Blandford, Dorset, held her position as third prize with a pen of as good white ones as need be desired. The Marchioness of Winchester fairly ran away with the prize from her rivals in the Grey Dorkings, with that well-known pen of dark ones, of late so repeatedly successful. They elicited the warmest approval of every visitor; and her first-prize pen of chickens of 1861 were but little, if any, less worthy of our especial mention. The second prize in the Dorkings was carried off even under this truly severe competition by a resident of Cornwall—viz., Mr. Roberts, of Treval, near Torpoint: this gentleman’s birds were shown in first-rate condition.

The *Cochin* classes were capital. In Buffs, Mr. Tomlinson, of Birmingham, took first and third prizes, with two of his unusually good pens, Mrs. Fookes’ second-prize pen being a trio of as well-plumaged birds as could be desired. Mr. Chase, of Birmingham, showed a pen of White Cochins in the most perfect feather conceivable, and wrested the first premium from as goodly a competition of “Cochins of every colour, save Cinnamon and Buff,” as we remember to have yet seen anywhere, so far as the Partridge-coloured birds of Mr. Peplow Cartwright were concerned; but with these two exceptions the class, as a whole, was a failure.

The *Game* classes were well filled, and likewise superior; Black-breasted Reds, Brown Reds, and Black Game being, however, decidedly the most favoured.

In their class, Mr. Ballance, of Taunton, showed as good a pen of coloured *Malays* as possible, and also a white cock in the Single Cock class, both of which obtained first premiums.

The *Hamburghs*, with the exception of Mr. Lane’s Golden-spangled, Mr. Martin’s Silver-pencilled, and Lady Julia Cornwallis’s Silver-spangled, were unusually faulty throughout.

The best variety of *Polands* exhibited, were the Black ones with white crests.

The most prominent feature in the Extra Variety class was the White Spanish. This district seems especially famous for this curious breed. Messrs. Rodbard and Fowler tried well for the mastery in Spanish Chickens, Mr. Fowler taking precedence, but well run by both the second and third-prize birds of Mr. Rodbard. Each of these three pens, if then doing well, will be formidable rivals at our winter meetings. Mr. Charles Felton’s pen of Partridge-coloured *Cochin* Chickens were excellent, and Mr. Archer’s Black-breasted Red Sweepstakes Game Cock was an admirable specimen. Mr. Harvey Dutton Bayley completely silenced anything approaching competition in the Sweepstakes Bantam Cock class, by entering his well-known Black-breasted Red, the fellow to such a bird being, in truth, but scantily sown.

The Rev. G. S. Cruwys took three first prizes for three descriptions of Bantams—viz., Silver-laced, Gold-laced, and Black ones, against a host of rivals—a triumph in these closely-contested days to any poultry yard. The first-prize Bantams for “any variety” were capital Duckwings; they took this premium even though labouring under the no slight disadvantage of travelling from Glasgow to Truro to attain it.

To say Mrs. Seamons, of Aylesbury, won the Aylesbury *Duck* prizes is, indeed, a Cuckoo’s note, for her breed of these useful stock are unsurpassable. Mr. Fowler’s *Rouens*, and Mr. Sainsbury’s *Buenos Ayrean Ducks*, were equally praiseworthy.

The *Grey Geese* and the *Turkeys*, also, belonging to the Marchioness of Winchester, stood out “like giants” in their respective classes, and we ourselves heard many remarks of visitors expressive of astonishment that such birds really were existing.

Some peculiarly good *White Guinea Fowls* were also much coveted.

Although many of the *Pigeons* were shown in unusually good trim, perhaps the most praiseworthy were the Ice birds and a pen of Black Trumpeters; these last were a marvel to the fancy. The Runts, too, were first-rate ones.

Among the odds and ends, a pair of exquisitely plumed *Cornish Choughs* reigned supreme; they were as tame as the most domestic chickens, in the rudest of health, and, as stated in the text, were “everybody’s favourites.”

It will be seen they were specially acknowledged by the Judges, Dr. Cottle, of Cheltenham, and Mr. Hewitt, of Sparkbrook, Birmingham. The poultry was well-looked to by the Council, and prompt measures were adopted to secure quick transit on their long return journey.

SPANISH.—First, J. Martin, Mildenhall Mill, Claines, Worcester. Second, H. Laue, Bristol. Third, J. K. Fowler, Aylesbury. Highly Commended, R. Wright, Holloway, London. Commended, J. B. Fowler.

DORKING.—First, Marchioness of Winchester, Andover. Second, R. W. Roberts, Cornwall. Third, Mrs. H. Fookes, Dorset. Highly Commended, E. Burton, Cornwall; J. K. Fowler, Aylesbury; C. H. Wakefield, Worcester-shire. Commended, G. Chadwin, Salisbury; Lady J. Cornwallis, Kent.

COCHIN-CHINA (Buff or Cinnamon).—First and Third, H. Tomlinson, Bir-mingham. Second, Mrs. H. Fookes, Dorset.

COCHIN-CHINA (any colour except Buff).—First, R. Chase, Birmingham. Second, J. Cartwright, Hampshire. Third, (withheld.)

GAME (White and Piles, Blacks and Brassy-winged).—First, J. Fletcher, Lancaster. Second, W. Dawson, Birmingham. Third, Rev. G. S. Cruwys, Devon.

GAME (Black-breasted and other Reds).—First, J. Fletcher, Lancaster. Second, S. Matthew, Suffolk. Third, W. Rogers, Suffolk. Commended, Rev. G. S. Cruwys, Devon.

GAME (Duckwings and other Greys and Blues).—First, S. Matthew, Suffolk. Second, Rev. G. S. Cruwys, Devon. Third, W. Dawson, Bir-mingham. Highly Commended, W. Long, Devizes.

MALAY.—First, C. Ballance, Taunton. Second, G. F. Nicholls, Cheltenham. Third, J. Rumsey, Hackney, Middlesex.

HAMBURGH (Golden-pencilled).—First, The Marchioness of Winchester, Andover. (Second and Third withheld.)

HAMBURGH (Silver-pencilled).—First, J. Martin, Worcester. Second and Third, T. Keable, Berks.

HAMBURGH (Golden-spangled).—First, W. R. Lane, Birmingham. Third, W. A. Elliott, Plymouth. (Second withheld.)

HAMBURGH (Silver-spangled).—First, Lady J. Cornwallis, Kent. (Second, and Third withheld.)

POLANDS (Black, with White Crests).—First and Second, T. P. Edwards, Lyndhurst, Hants. Third, G. Ray, Lyndhurst, Hants. Commended, Miss E. de Conicy Devar, Dublin.

POLANDS (Golden and Silver-spangled).—First and Second, E. Carlyn, Cornwall. Third, E. Carbis, Cornwall.

ANY VARIETY NOT COMPRISED IN THE FOREMENTIONED CLASSES.—First, Miss S. H. Northcote, Exeter (White Spanish). Second, J. Martin, Corn-wall (Cuckoo Fowls). Third, The Marchioness of Winchester, Andover (Brahmas). Highly Commended, E. Burton, Truro (Minorcas); J. K. Fowler, Aylesbury (Brahmas); J. Davey, Cornwall (Silver Pheasants). Commended, J. H. Craigie, Essex (Brahmas).

SPANISH CHICKENS (Black or White).—First, J. K. Fowler, Aylesbury. Second and Third, J. R. Rodbard, Aldwick Court, Wington, Bristol.

DORKING CHICKENS.—First, The Marchioness of Winchester, Amport St. Mary's. (Second and Third, withheld.)

GAME CHICKENS.—First and Second, withheld. Third, J. Fletcher, Stone-clough, near Manchester.

COCHIN CHICKENS.—First, C. Felton, Erdington, Birmingham. Second Mrs. H. Fookes, Whitechurch, Blandford, Dorset. Third, J. K. Fowler, Aylesbury, Bucks. Commended, J. K. Fowler, Aylesbury.

SWEEPSTAKES.

GAME.—First, E. Archer, Malvern. Second and Third, J. Fletcher, Stone-clough, Manchester. Highly Commended, W. D. Braginton, Knapp, Bideford, Devon; J. R. Rodbard, Aldwick Court, Wington, Somerset.

DORKING.—First, Mrs. N. Grenville, Butleigh Court, Glastonbury. Second, G. Chadwin, Tollard Royal, Salisbury.

MALAY.—Prize, C. Ballance, Taunton.

GAME BANTAM.—First, T. H. D. Bayley, Ickwell House, Biggleswade, Beds. Secord, J. Camm, Farnsfield, Southwell, Nottingham.

BANTAMS (Gold-laced).—First, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton. Second, T. H. D. Bayley, Ickwell House, Biggleswade, Beds. Third, E. Burton, Truro, Cornwall. Commended, Rev. G. F. Hodson, North Petherton, Bridgwater.

BANTAMS (Silver-laced).—First, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton. Second, T. H. D. Bayley, Ickwell House, Biggleswade, Beds. Third, Miss G. Everett, Gibraltar Cottage, Monmouth.

BANTAMS (White and Black).—First and Second, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton. Third, T. H. D. Bayley, Ickwell House, Biggleswade. Highly Commended, J. Catell, Mosely, Birmingham. Com-mended, G. J. Dowrick, Truro.

BANTAMS (any other variety).—First, A. Campbell, Blythwood, Renfrew, Scotland. Second, J. Camm, Farnsfield, Southwell, Nottingham. Third, E. Burton, Truro. Highly Commended, R. Liscambe, Tamer Brewery, Devon-port. Commended, J. Mapplebeck, Moseley Road, Birmingham.

DUCKS (Aylesbury).—First and Second, Mrs. M. Seamons, Hartwell, Ayles-bury. Third, E. Carlyn, St. Austell, Cornwall.

DUCKS (East Indian).—First and Third, G. S. Sainsbury, Rowde, near Devizes, Wilts. Second, Marchioness of Winchester, Amport St. Mary's.

DUCKS (Rouen).—First, J. K. Fowler, Aylesbury, Bucks. Second, E. Burton, Truro. (Third, withheld.)

DUCKS (any other variety).—First, T. H. D. Bayley, Ickwell House, Biggles-wade, Beds. Second, E. Burton, Truro.

GESE.—First and Second, Marchioness of Winchester, Amport St. Mary's. Third, G. Williams, Scorrier, Cornwall.

TURKEYS.—First, Marchioness of Winchester, Amport St. Mary's. Second, Miss J. Milward, Newton St. Loe, near Bath. Third, G. Williams, Scorrier, Cornwall. Highly Commended, E. Carlyn, St. Austell, Cornwall. Com-mended, J. Chapman, Kelliseth, St. Erme, Cornwall.

GUINEA FOWLS.—First, G. Williams, Scorrier, Cornwall. Second, H. Adnicy, Lymstone, Devon.

PIGEONS.

CARRIERS.—First, F. G. Stevens, Axminster, Devon. Second, no com-petition.

ALMOND TUMBLER.—First, F. G. Stevens, Axminster, Devon. Second, Marchioness of Winchester, Amport St. Mary's.

TUMBLERS (any other variety).—First, F. G. Stevens, Axminster, Devon. Second, withheld. Third, C. H. Venn, Truro.

POWTERS.—First, F. G. Stevens, Axminster, Devon. Second and Third, J. Martin, Treweeke, Stithians, Cornwall.

RUNTS.—First, F. G. Stevens, Axminster, Devon. Second, E. Pigeon, Lymstone, Devon. Highly Commended, J. Davey, Camborne, Cornwall.

JACOBS.—First and Second, F. G. Stevens, Axminster, Devon.

FANTAILS.—First, Miss J. Milward, Newton St. Loe, Bath. Second, F. G. Stevens, Axminster, Devon. Commended, Marchioness of Winchester, Amport St. Mary's; J. Davey, Camborne, Cornwall.

OWLS.—First and Second, F. G. Stevens, Axminster, Devon.

TEMPLEPIERS.—First, F. G. Stevens, Axminster, Devon. Second, J. Davey, Camborne, Cornwall. Commended, F. G. Stevens.

BARBS.—First, F. G. Stevens, Devon. Second, J. H. Craigie, Woodlands, Chigwell, Essex.

TURBITS.—First and Second, F. G. Stevens, Axminster, Devon.

NCS.—Prizes withheld.

DRAGONS.—First, F. G. Stevens, Axminster, Devon. Second, J. F. B. and Newton Abbot, Devon.

ARCHANGELS.—First and Second, F. G. Stevens, Axminster, Devon.

ANY OTHER NEW OR DISTINCT VARIETY.—First, F. G. Stevens, Axminster, Devon (Iceland). Second, J. Davey, Camborne, Cornwall (Magpies).

Mr. J. Pearce, Ferris Town, Truro, Cornwall, a collection of Rabbits.

Mr. Pearce's Black and White Buck and Doe are highly Commended; also, his peculiarly good Grey Doe.

The Cornish Choughs, Pen 311, could not compete in the general classes, but on account of their rarity and most excellent condition they are highly appreciated and commended by the Judges.

POISONED FOWLS.

"My fowls are poisoned!" These words were uttered by one of my neighbours when he found one of his fowls dead; and no doubt it was poisoned, for there was every symptom of its having eaten poison, yet I have no doubt he was wrong when he said, "Some evil-disposed person has done it."

Housekeepers are too much in the habit of buying and using packets of "vermin destroyer" to enable them to get rid of mice and other vermin; and afterwards, if they find a dead mouse in any of the rooms, away it goes to the ash-pit, or any other out-of-the-way place; in a few days it becomes putrid. The first fowl which finds it tries to eat it, and often succeeds in doing so, and then, in the course of a few hours, the fowl is dead.

A weaver who is a poultry-keeper, and has kept poultry for more than thirty years, informs me that he has lost more fowls during the last five years from the above cause than he has lost during his lifetime from all other diseases. A youth, who pays great attention to the wants of his Bantams, one day saw one of them eating a poisoned mouse which had been thrown out of a dwelling-house; in a few hours afterwards he found the Bantam dead. I have seen a dead weasel retaining its hold of a dead mouse, I took it by the tail and pulled, and it drew the mouse after it. I felt desirous to know the cause of their deaths. On inquiry I found that a packet of vermin destroyer had been used in a neighbouring cottage the day before; and I have no doubt but that the mouse had eaten a portion of the poison, and had been caught by the weasel as soon as the blood of the mouse had taken up the poison, and both of them died.—R. S.

MANAGEMENT OF PARROTS.

In reply to your inquiries on this subject I send you the result of my own experience, feeling glad of the opportunity of contributing even in this trifling degree to your interesting Journal.

Mine is a Parrot of the Australian breed, called a "Green Leek," an elegant bird,* not large, and of a brilliant plumage. It has been in my possession sixteen years.

Its usual food has been hempseed and dry bread, with fresh water supplied every morning, at which time the cage is also carefully cleansed. Occasionally an almond, nut, or raisin may be given with advantage; but no flesh meat. When moulting I give a little Cayenne, or preserved ginger, or anything of a warm nature.

The water-trough should be roomy, as the bird enjoys its bath, especially in summer.

This Green Leek of mine has had within the period alluded to (sixteen years) three or four fits; to relieve which warmth is necessary, and a little flannel, dipped in eau de Cologne, applied to the body. I give my bird a swing, in which he greatly de-lights, and when exposing his cage to the sun, I always take care to protect it by a covering.—S. A.

TAUNTON AND SOMERSET POULTRY ASSOCIATION.—We are glad to hear that there is every promise of establishing a first-class and permanent show at Taunton, although the money prizes are not high. The prize list in its extended classification

* This species do not rub their beaks against the wires of the cage.

meets with general approbation. The entries are already very numerous in every class. The great attraction is, undoubtedly, the "thirteen pieces of plate," value £2 2s. each, most of which will be gained by the small entry-fee of 4s., and some of them for only 2s. 6d. They consist of handsome vases, cake baskets, fish slices and forks in cases, spoons and forks of all sizes, salvers, &c. The entries will close positively on June 17th.

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 127.)

11. THE MOUNTAIN SPARROW (*Fringilla montana*).

German, Der Feldsperring.

French, Le Fringet.

THE Mountain Sparrow, known also as the Tree Sparrow, although not so common as the House Sparrow, is nevertheless often met with in many parts of England.

In plumage the Mountain Sparrow somewhat resembles a cock of the common or House Sparrow: it is, however, rather smaller, and the male and female are so nearly alike as not to be distinguishable apart. By comparing them, the cock has rather a clearer ring round the neck. The top of the head in both sexes is dark reddish-brown; the cheeks white with a black patch, and a black spot under the beak; the upper part of the body is reddish-brown with blackish marks in the feathers, like the House Sparrow; the quill-feathers of the wings and tail are nearly black, the under parts of the body being dingy white. They are active, restless little birds of social habits—rarely found in towns, but prefer orchards. Their nest, which is built principally of hay, is much like the common Sparrow's, and is usually placed in a hollow tree, or in a hole in an old ruin or cleft of a rock. The eggs, from five to seven in number, are light grey, with dark grey and reddish marblings. They feed principally on insects. Mr. Bechstein, in speaking of their usefulness, says, "Their flesh tastes even better than the House Sparrow's; and where a pair take up their abode in an orchard, they should by no means be driven away, on account of the exceeding great good they do, particularly when they have young. Both parents fly all day from tree to tree, and collect in spring from the buds and flowers, and in summer from the leaves of the fruit trees, the destructive caterpillars and insects." Though their food consists chiefly of caterpillars, cockchafers, grasshoppers, and many other insects, yet in autumn they will also take tithe of oats, barley and wheat, as well as other seeds; and in winter they will come into the farmyards for hay seeds and scattered grain: still they must be considered of greater benefit than harm.

Their song, if such it may be called, is not unpleasant; it is composed of a running string of chirps, somewhat in Sparrow fashion, with some sprightly and pleasing intonations. Their call also resembles the common Sparrow's, but shriller, and sounds something like knocking two small pebbles together. Like the Skylark and House Sparrow, they both bathe in water, and dust their feathers in sand. Bechstein speaks of Mules between them and the Canary.

From the following account given by a correspondent, in a contemporary, it would appear that these birds were migratory in the northern parts of Europe. He writes, "A Norwegian brig put into Penzance a few days since; and among other incidents of the voyage between England and Norway, the master of the vessel mentioned that, midway between the two countries, thousands of small Sparrows passed and alighted on the ship, covering the deck, &c.; the birds were exhausted and soon died, and some half dozen were kept from mere curiosity to show to friends. These were brought for my inspection a day or two since by a person who begged them of the captain to show me. The six specimens were all *Passer montanus*, the Tree Sparrow, the Mountain Sparrow, of Bewick.—Edward H. Rodd, Penzance."—B. P. BRENT.

CURE FOR THE FILM ON GOLD FISH.

I PERCEIVE that some of your readers have experienced a difficulty in respect to their Gold and Silver Fish, and, therefore, forward you the following detail, as I know the remedy is both effective and inexpensive:—

Some thirty years back, a friend of mine, who then lived some three or four miles in the country, whilst I myself was at that time tied to the town, entered into a sort of co-partnership. He pos-

sessed a good-sized pond, and I found Gold and Silver Fish to stock it. As from a spring some little distance off it was supplied with a constant accession of fresh water, we were very sanguine of success with our pets, and for a year or so everything progressed most favourably; after that time, however, the Fish were troubled with a disease exactly resembling the complaints mentioned by your correspondents—a kind of mouldy-looking film came upon them in patches, which gradually progressed to the gills, and even extended itself over the eyes, causing partial blindness and eventually certain death.

With all the ardour of youth, we tried every possible appliance that friends suggested, but without any benefit whatever; and found, to our great annoyance, that every attempt at cleaning the fish by hand was only a brief addition to their sufferings, and death occurred in a day or two afterwards. We tried Perch in the same water, but they in a week or two became as infected as their more-brilliant-coloured companions. A gamekeeper of a friend of mine suggested, "That the sides of the pond were bricked, all the water was deep, and the bottom being muddy, the fish had no shallow scours to clean themselves upon, and they would never be better till they had." A place was cut out of the bank at his suggestion, some six yards square, the water covering it perchance a foot deep; the bottom, however, of this part was sharp grit, or drift sand, and small pebbles taken expressly for the purpose from the turnpike road. It was then summer time, and the fish of every kind at once commenced "cleaning themselves" by rubbing sideways over the bottom with the greatest diligence, and quickly recovered; nor did the disease again present itself. For many years afterwards they both grew and bred freely, until the pond was eventually filled up for building purposes.—EDWARD HEWITT, *Sparkbrook, Birmingham*.

DOES THE QUEEN BEE GOVERN THE COLONY?*

THE sovereignty of the queen bee has been long held to be the very model of a beneficent despotism, founded upon the highest principles of filial love and parental affection. For the first time, we believe, since the honey-bee attracted the notice of scientific observers, an enthusiastic apiarian has ventured to contravene the received opinion on this point, and actually to push matters to the republican extreme, of declaring the so-called queen "to be a creature of the colony, and subject to their power and control from the time the egg is deposited from which she is reared up to the perfect queen, and from that time to the day of her death." Most apiarians are aware of the stimulating influence of a good honey season on the breeding powers of the queen bee; but Mr. Harbison believes that "this matter is regulated entirely by the common worker bees, by the quantity or quality of food they give her; or, in other words, she is an instrument which they use as they see fit, to supply them with eggs, from which to replenish the hive with young workers."

Some writers on bees go so far as to imagine that nothing is done in or about the hive unless by orders emanating from the sovereign herself. To such Mr. Harbison replies, that when a queen is removed from a colony no disorganisation ensues; but that after a careful search for the lost one, the duties of the hive are carried on with the same order and precision as if a queen were present. "Now," he asks, "if the queen rules a colony and directs its movements, laying out all the plans, &c., as most writers would have us believe, where is the directing or governing power in the absence of the queen?"

We have ourselves recently witnessed an instance in which the workers summarily made away with their common mother. An artificial swarm appeared to take a dislike to the hive in which it had been placed and quitted it the next day. After rising in the air, they returned to the obnoxious hive without clustering, and shortly afterwards the queen (a very fertile Ligurian, with defective wings) was discovered on the ground in front of the hive. When placed on the alighting-board she was allowed to enter without opposition; but was found the next morning lying dead on the same spot whence she had been picked up the day previous. Supposing, therefore, the queen bee to be an absolute sovereign, her despotism, like that of the Czar of all the Russias, appears liable to be tempered by assassination.†

* *Bees and Bee-keeping*. By W. C. Harbison. New York: Saxton & Co.
† Since the above was written the artificial swarm has thrown off a swarm under a young queen. It is, therefore, more than probable that the queen regnant fell in combat with this young princess, instead of being put to death by the workers as at first supposed.

Mr. Harbison also asserts that "no eggs are deposited by the queen in queen cells," arguing that the hatred manifested by a queen regnant towards all embryo princesses proves "very conclusively that the queen of a colony does not desire any other queen raised in her domains for any purpose, and, consequently, does not deposit any eggs in the royal cells." His theory is that eggs are removed by the workers from common cells, and placed by them in the royal cradles. Without indorsing this opinion to its full extent, we may remark that we have known queen cells established on more than one occasion by bees in the absence of their queen, and tenanted by an egg which must have been brought from some other part of the hive, since we have been well assured that there was previously no egg on the spot where the cell was formed, or even in its immediate neighbourhood.—A DEVONSHIRE BEE-KEEPER.

VARIETIES.

PRODUCTIONS OF EASTERN AFRICA.—The climate of most of these countries is remarkably beautiful and healthy, the average temperature being 56° Fahr.—the highest 70°, and the lowest 46°. The Gallas occupy vast and noble plains, which are verdant almost all the year round, and afford nourishment to immense herds of cattle. Their houses or huts are round and cone-shaped, covered with roofs of grass, and mostly inclosed by a low stone wall for security against sudden attack. The villages or hamlets are for the most part in groves or woods, on heights, or on the sides of mountains and rivers. The land is rich in springs and brooks, well supplied by the tropical rains, which last for three months, besides which there is a second short rainy season. Wooded mountains and hills also abound, which serve for places of refuge to the inhabitants in time of war; and the tall Juniper is among the most remarkable of the trees which adorn these forests. The Gallas have priests, called Lubas, as distinguished from the Kalijās, who are their magicians, exorcists, and medicine men. As in the case of most heathens, so with these people, a tree has an important place in their religious ceremonies. Under the shadow of the Woda sacrifices and prayers are offered up; a higher spirit even is supposed to dwell within it, on which account the Woda is esteemed holy, and no one dare fell or harm it without losing his life. Of the greatest sanctity is the tree Worka (*Ficus sycamorus*), Woda Nabi, by the river Hawash, where the Gallas every year offer up a great sacrifice, and pray to their highest deity, Waka, sacrificing oxen and sheep to him, and drinking plenty of beer, and smoking tobacco. In their prayers, which have no fixed formula, they say, "O Wak, give us children, tobacco, corn, cows, oxen, and sheep! Preserve us from sickness, and help us to slay our enemies who make war upon us, the Sidama (Christians), and the Islama (Mohammedans)! O Wak, take us to thee! lead us into the garden: lead us not to Setani, and not into the fire!" On this occasion, the Lubas, or priests, augur from the entrails of goats whether victory or defeat is to accompany the Gallas in the coming year. From Magonbani I had to continue the ascent a league and a half, until I reached the village Jibana. The road was very steep and rough, and led through woods of Sumach, the Copal tree, which reached a height of from 60 feet to 70 feet, with thin and small leaves, and a white bark. I saw many trees with incisions in them made by the natives, that the sap might flow to the ground and crystallise by mixing with the earth, and the Mohammedans make yearly a great deal of money by this valuable varnish, which is sent to India and Europe. There are few wild beasts in these woods, but they abound with beautiful birds. There are said to be elephants in the Galla land, in the neighbourhood of Emberria; but in the Wanika territories there are no longer any of these animals to be found, as they recede more and more into the large forests, and to the rivers of the interior, owing to their being so much molested since European commerce with Zanzibar has produced so great a demand for ivory. If it be true that yearly about six thousand elephants' tusks are brought to the Snahili coast, it can easily be understood how quickly these animals diminish, and why they recede ever further into the interior of Africa.—(*Krafft's Travels in Eastern Africa.*)

PRODUCING DOUBLE FLOWERS.—The Germans, it is known, are very successful in growing seed of Asters, Stocks, and Balsams, that produce very double and beautiful flowers. This is done by growing the plants crowded in pots, in a very poor

soil, until the blossom-buds are forming, when they are liberally watered every day with rich liquid manure. The effect is a few fine seeds that will produce perfectly double flowers, instead of a great many poor seeds. Mr. James Eadie, in an essay read before the Progressive Gardeners' Society of Philadelphia, alluded to the fact in the following terms:—"Much depends upon the state of growth of the parent plants; if they are growing very luxuriantly previous to setting their seeds, the seedlings will prove strong growers; but if, on the contrary, the plants are weak, and when setting, and while maturing seed, are stimulated into a strong and vigorous growth, the fruit will be larger, and the tendency to produce double flowers very much increased. This is a fact well known to the German florists, who are proverbial for producing double Balsams, Asters, and Stockgilly flowers. It also explains the reason why the Dahlia and Hollyhock flowers remained so long single, although the plants were as strong growers then as now, and why their seedlings are so certain to degenerate, no matter how strong the plants are, unless every means are taken to stimulate them while setting and maturing seed. It may also explain why Tulips and Pansies are so generally produced single at this day, as any stimulus given to them while in flower causes the colours to run and intermix, thus spoiling their beauty in the eyes of critics, for any tendency to double flowers in these plants is accompanied by defective colouring. The best raiser of the Stockgilly that I ever knew, used to grow his plants in very small pots and poor soil, until the blossom-buds began to form; he then planted them out in a bed of rich soil, and supplied them liberally with manure water until the seeds were ripe, and from seeds so produced he had always a large proportion of plants that had double flowers, and the plants of a fine dwarf habit, which would not be the case when the stimulus was applied during all the period of growth."—(*Prairie Farmer.*)

EGGS.—The large number of 63,554,640 eggs were brought into this country in the four months ending April 30, 1861, being an increase of upwards of thirteen millions over the corresponding period in 1860.

OUR LETTER BOX.

DORKING CHICKENS AT CHESTERFIELD.—"I was much gratified by the flattering remarks on my Dorking chickens exhibited at Chesterfield, but I cannot claim the honour given me in your paper of taking prizes at Beverley, as I did not exhibit there this year. I think Mr. Berwick was there the successful exhibitor."—J. G. A. BAKER.

DORKING COCK WITH SWOLLEN FOOT (J. L.).—If there is not a thorn or piece of glass in the foot, it is probably bruised by flying down from a high perch. If the latter is the cause do not let the bird roost on a perch higher than a foot from the ground, and take care that he does not at any other time bring a heavy pressure on the foot by flying over palings, &c. We should confine him to an outhouse with the floor covered with sand, and to a grass-covered run. If a thorn or other sharp article is lodged in the foot this will not heal until that article is removed by means of a sharp penknife. Continue the bathing with hot water, and keep the bird chiefly on soft food.

RAPE SEEDLINGS (J. H.).—The green leaves of these raised from seed of what is popularly called "Bird Turnip" or "Summer Rape," are very good green food for Canaries, Linnets, and similar birds.

BEE-HIVES (Yorkshire).—We know of no place now where Mr. Payne's cottagers' hives and others can be obtained cheaply. If we wished, as you do, to introduce them among "our villagers," we should buy one of Messrs. Neighbour & Son, and with that as a pattern any country hive-maker could construct them.

BEES BY POST.—The five Lignian workers kindly sent by Mr. Woodbury were dead when they reached me. On attempting to resuscitate them, one made a last slight movement. Probably the appearance of the parcel had excited the curiosity of some post-office official, as both ends of the small pill-box containing the travellers were driven in.—WILLIAM EAGLESHAM, *Stewarton.*

LONDON MARKETS.—JUNE 10.

POULTRY.

The supply goes on increasing, and the demand is good, making trade far more pleasant than it was. There is not, perhaps, so much poultry as usual; but after the positive dearth we have had, the present supply seems very great.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	5	6 to 6 0	Guinea Fowls.....	0	0 to 0 0
Smaller Fowls.....	3	6 " 4 0	Leverets.....	0	0 " 0 0
Chickens.....	2	6 " 3 0	Pigeons.....	0	8 " 0 9
Ducklings.....	3	0 " 3 6	Rabbits.....	1	4 " 1 5
Goslings.....	5	6 " 6 0	Wild.....	0	8 " 0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	JUNE 18—24, 1861.	WEATHER NEAR LONDON IN 1860.										Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.				
18	Tu	Gladioli.	29.788—29.745	deg. deg.	N.W.	—	m. h.	m. h.	m. f.		m. s.	169		
19	W	Lilies.	29.760—29.757	65—61	E.	.34	44 3	17 af 8	20 0	10	0 46	170		
20	Th	QUEEN VICTORIA ACCESSION.	29.627—29.603	68—47	S.W.	.12	44 3	18 8	20 1	12	1 12	171		
21	F	QUEEN VICTORIA PROCLAIMED.	29.830—29.556	71—48	S.W.	.19	45 3	18 8	7 2	13	1 25	172		
22	S	Sun's declin. 23° 27' N.	29.961—29.906	69—50	S.W.	.04	45 3	19 8	rises	14	1 23	173		
23	Sun	4 SUNDAY AFTER TRINITY.	29.998—29.874	71—49	S.W.	.08	45 3	19 8	16 a 9	15	1 31	174		
24	M	MIDSUMMER DAY. NAT. IN. EAP.	29.947—29.876	73—50	W.	.11	45 3	19 8	45 9	16	2 4	175		

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 72.5° and 49.3° respectively. The greatest heat, 93°, occurred on the 22nd in 1846; and the lowest cold, 30°, on the 20th in 1855. During the period 130 days were fine, and on 108 rain fell.

CAUSE OF THE VARIATION OF FLOWERS.



OF Deal, states, and, apparently, he is corroborated by Mr. Lightbody, that when Auriculas throw up side blooms these keep pretty true to their character; but that when they throw up a heart bloom—that is, from the axis of the plant, the flower, no matter what may be the colour of its edging, “is just as likely to come in any other class as in the one it belongs to.” This seems to be an extremely curious observation.

It shows that some little light could be thrown on the laws of variation, if the many acute observers who read THE JOURNAL OF HORTICULTURE would contribute their knowledge on such points. I wish “D.” would have the kindness to give a few more details, such as out of so many heart blooms so many lost their character, and so many kept true; giving also the proportion in the side blooms which kept true.

As I am appealed to, I will make a few observations on this subject; but I have no doubt others could throw more light on the question. Professor Moquin-Tandon asserts, that with irregular flowers, as Snapdragons, the terminal flower in the axis of the plant is more apt to become regular, or peloric as botanists say, than the other flowers. I once found a Laburnum tree with the terminal flower on each raceme nearly regular, having lost its peablossom structure. With many Pelargoniums (I have one at present in my greenhouse, but I know not its name), the central flower in each truss every year comes regular, loses the two dark patches of colour on the two upper petals, and, what is very curious, loses the nectary, which may be seen in all the other flowers cohering to the flower-stalk. In the common Carrot the central floret in the umbel is dark purple and very different from the others; and I find that this central little flower is extremely variable. Are there not other cases of species which habitually have the central flower different from the others? It must, however, be confessed, that Mr. Masters, a high authority on such subjects, disputes that peloric flowers are apt to be central; but it seems to me extremely improbable that the several recorded cases should be due to chance, and all these facts seem to hang together and to indicate that in the flower nearest the axis there is a tendency to differ from the others, or to be variable, or to revert to a hypothetical regular form—that is, as I should look at it, to revert to the structure of a remote ancestor. The curious case of the Auricula apparently falls into this same group of facts.

I hope that some of your correspondents will state whether in the case of single buds sporting, as has so often occurred with Pelargoniums, it has been observed that such sports occur more frequently on one part of the plant than on another. I suppose it is not so, or it would have been noted. Having alluded to the central flower

in certain Pelargoniums which have lost the two dark patches of colour and the nectary, I would venture to ask some skilful observer to try whether this flower could be made by artificial fertilisation and by pulling off some of the adjoining flowers to yield seed. The stigma should be fertilised with pollen from, if possible, a peloric flower on another plant; and access of other pollen should, of course, be prevented. Peloric flowers have generally been found quite sterile; but Willdenow got seeds from a peloric Snapdragon, and the peculiarity was inherited: hence it is possible, though not probable, that a new strain of quite symmetrically-flowered Pelargoniums might be thus raised. Experiments are tedious and very often fail; but it would be well worth while for any man endowed with plenty of patience to collect seed from the central floret and from the other florets on the same truss of any ordinary Pelargonium, and sow them separately and see which varied most. Of course, all the flowers should be fertilised by the same pollen and subsequently protected from insects.

The same law which causes the heart bloom on an individual Auricula not to keep so true as a side bloom, might cause the seedlings of the central flower of a Pelargonium or other plant to vary more than the seedlings from the other and exterior flowers. This would be a secret worth discovering and revealing.—CHARLES DARWIN, *Down, Bromley, Kent.*

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 192.)

MOUNTING AND MENDING.

ANOTHER useful though mechanical operation is that of mounting and mending flowers. Every one knows how often a beautiful flower-head falls from its stem, and how often we are forced to refrain from gathering one bright blossom, because on the same stalk are others not yet out which we cannot sacrifice.

The mounting prevents this difficulty; for a flower with less than half an inch of footstalk does quite as well for a bouquet as any other could do, taking it in its freshest state, either newly gathered or preserved in a dark cupboard (the cupboard must, however, be perfectly fresh and airy) and then pressing the smallest piece of well-soaked cotton wool around its stem. A little piece of wire wound upon it keeps the wool closely fastened on, and at the same time fixes the flower in its proper place. The cotton requires soaking and pressing together in the water for some time to become thoroughly saturated, unless a morsel for each flower is moistened separately. A fresh green Myrtle leaf does very nicely for rolling over the little piece of wool.

Many persons, including most of the French florists, have the habit of binding their flowers on little pieces of stick—common square bits of deal, for instance; and these are well adapted to the purpose, being so perfectly hard and light.

But special flowers have still their little peculiarities. A Rose, we will suppose, has snapped from the stem just underneath the cup. To bind the wire above the cup would be likely to cause the petals to be too much compressed or cut. It is better to take it round the calyx just where it is sufficiently compressible to give a secure hold; even carrying one sharp end of the wire through a needle-pierced hole rather than risking damaging the flower more, and then proceeding with it as I said before.

A white Camellia, again, is injured by the smallest touch of moisture on its petals, as it causes on them a yellow stain, quite destroying the fairness of that pure white flower. It needs very great care in its preparation, and does most beautifully then.

The best way is, before touching the flower, to moisten thoroughly a piece, the size of half a crown, of white cotton wool (using for pink flowers pink wool in preference). This should be laid on a larger piece nearly the size of the flower itself, which should then be most gently raised, two ends of a loop of wire having first been passed through the centre of the wool. Often, especially for an inexperienced hand, a piece of Berlin wool does better than the wire, as a too-tight pull would be likely to do less damage. An experienced flower-mounter would, however, in a moment, raise the enlarged loop to touch the lower petals evenly all round; cause it to slip between the leaflets, or points of the thickish calyx and the flower itself; tighten it almost imperceptibly, yet enough to retain its hold; and then, rapidly reversing the flower, or raising the wool to it, she would pass the wire through the wetted wool, bringing it down upon a support formed by a spray of Camellia leaves or a branch of stumpy foliage of some evergreen kind; or binding it down upon the piece of deal I spoke of, and arranging the wool to rest on the green foundation through which the stem formed passes.

Some persons use melted isinglass rather freely to cause the petals of the flower to adhere to the wool; and where the Camellia is to be worn in the dress or hair, this practice cannot be too strongly advocated. Besides the security as to keeping the flower moist, it insures some petals remaining on the wool, even supposing that the rest should fall.

In a beautiful crown of Camellias I remember being used in the adornment of a beautifully wreathed doorway, the flowers were arranged something in this manner. They were required to last for several days in the place they filled, and at the end of the third day they were still in perfect beauty. The blaze of light then caused these leaves to drop; but the wool underneath retained the appearance of the flowers still, as it would do always when the petals thus clung to it. The effect was so good that I had the curiosity to take very considerable trouble to ascertain the name of the maker of that crown, and to find out by divers experiments the process that had been used, which many times since has stood me in useful stead.

Clearness is a great benefit in any gum you use. Isinglass is so good from being so stiff and yet so sticky, while quite free from any yellow tinge.

Then, for mounting Geraniums, Azaleas, and so on, the heads are, properly speaking, cut off with an inch or so of stalk, a drop of gum given inside to fix the flower, and then the usual process is performed of rolling in wool and wiring.

Sometimes, however, there are single blossoms separated from the cluster to be grouped together. Attaching a short wire to the stalk of each, all may be duly twisted together and provided with the usual wool; and thus one often gets a few stray bunches of very well-looking flowers.

Lilies do most capitally treated like Camellias as to the bed of well-wetted wool on which they should repose; but little clustering flowers should always be fixed on

sprays of foliage similar to their own in growth; and they are, therefore, rather adapted for surrounding and softening the edge of the more solid circles, or for the circle of waving green and flowers that surrounds the whole.

The rule of affixing to each flower its own appropriate foliage is one that greatly deserves to be remembered well; each flower seeming to have some peculiar shade and shape of leaf which, beyond all others, suits it.

PASSION-FLOWER AND ROSE DESIGN.

I will give a plan this week for another drawing-room dish of flowers—one which might well appear on a dinner table also.

The flowers of the pale blue Passion-Flower, and of the very palest pink Rose that happens to be procurable, are those I want to recommend to-day.

The Roses are all the better if they are not very double. They should be nearly full blown, and will, therefore, require changing probably two or three times over before the beautiful, cool-looking, and sweetly scented blue flowers will begin to manifest any signs of withering.

The flowers being all very pale, I do not think that any deep green with them looks well. I prefer to any a pale colour just about the same depth as that of the flowers themselves—about what, in works shaded in sixes, would be called the third shade. They are, however, the only flowers I recollect just now which also look really beautiful when arranged together without any leaves at all. I believe, in reality, the pale soft tints do not require any great contrast to set them off, it being rather their own harmony on which they depend for beauty.

The loveliest way I ever saw them done was in a large raised crystal dish filled with water, and standing on a table; between the flowers was the clear cool water, looking so fresh, with the flowers seeming almost to float upon it.

The Passion-Flowers alone are very lovely; but if mixed with the Roses a double row of the latter all round the dish, fringed with a wreath of Fern leaves, and a group gathered loosely in the centre of the pale blue flowers, quite unmixed with any other colour, has a particularly delicate effect: the odour, too, is delightful. When they are to be really mingled I think green should be more made use of. Acacia leaves do well for the purpose, having the desirable very pale and yellowish-green tint.

In this case I should say that a ray-formed design was best; laying first the thick fringe of pale Acacia leaves all round the edge, then placing the Roses, and lastly putting in the Passion-Flowers to fill up the wedge-shaped spaces left.

This would be very beautiful, but not nearly equal, I think, to the loosely arranged group with its wide Rose-border. Some designers would even place a common tumbler in the middle of the dish; and after arranging the latter with its Rose wreath and a single band round the foot of the glass of Passion-Flowers, they would group together in the central tumbler a knot of drooping flowers; thus raising them a little that they may show the better their exquisite shape and colour while drooping over; the glass remaining hidden.—E.

(To be continued.)

OPENING OF THE ROYAL HORTICULTURAL SOCIETY'S GARDEN.

(Continued from page 197.)

I LEFT off at Mr. Warner's *Lælia purpurea* or *purpurata*; and there were only the small collections from the Continent, by Linden and Verschaffelt, to finish the front stages of new and rare sights. But having got hold of the button-hole of

Mr. Hill, of Keele Hall, our best Grape grower, and extracted some of his secrets, I shall tell of them first.

He agreed with me that all our best seedlings from the Dahlia up to the best Muscat Grape are so run upon in their properties by close propagation, that no mortal can bring them up to the starting-post for the first two or three years after they are "let out," much less have the chance of winning a prize with any one of them, save in some very rare instances. And he instanced his own Buckland Sweetwater Grape in corroboration of his theory of the chances and fate of new seedlings.

When I asked him how he managed to grow the bunches and berries to such enormous sizes, seeing that Mr. Ivery had but just sent it into the market, as it were, he told me the whole secret: his house of Black Hamburgs, or his plants of them, rather, are now in their prime mood, from eight to ten years of age, and as soon as he obtained the Buckland Sweetwater he grafted it on that plant of the Black Hamburg that never yet failed him in competition, and "the result is before you."

"But how and when did he graft?" In March, 1860, he grafted a shoot of the previous year's growth with *one bud and two inches of wood*. First, he cut off the top part of the yearly shoot of the Black Hamburg to a very firm-ripened part near the bottom, then split down the stump in the centre just through the pith part; the bud of the Buckland with the 2 inches of wood had 1 inch below the bud and 1 inch above it; the inch below the bud he made in the form of a wedge, and put the wedge "home" in the cut of the stock, so that the bud itself sat, as it were, on the top of the stump—a carpenter could perform the operation, and any gardener could clay the graft, and moss it too, and keep the moss between damp and wet till the eye was a shoot of 1 foot in length—then he would undo the clay, loosen the bandage, and tie again very loosely, and put some fresh moss over it, and keep it so to the end of August; but, of course, there would be no need to keep the moss and loose bandage on so long; only in an experiment with a very new or very rare Grape one often goes beyond security to make doubly sure. Mr. Hill grafted last spring twelve-months, and this June took a prize for it at the grandest Exhibition that ever was seen—just eighteen months after putting in the graft. And he told me he would serve Ingram's Prolific Muscat, the Trentham Black, and all new Grapes in future just as he did Ivery's Buckland Sweetwater.

I tasted Ingram's Prolific Muscat since, and tasted no other Grape that day before it, so that the flavour of one could not deceive me in another, and I can now say of it as I did of the Buckland Sweetwater, and with equal confidence in the result.

At present Mr. Hill is certain we have no better Vine for a stock to graft on than the Black Hamburg; but he thinks it very probable that some of the American Grapes which are more hardy will ultimately be found superior for amateurs and most gardeners to graft on. Until such time as these wild American Vines are tamed to graft upon, take short two-joint cuttings of Miller's Burgundy Grape, and, my word for it, you will have a much hardier stock than the Hamburg and a better one for ninety-nine growers out of a hundred. Plant lots of such cuttings round the walls or palings about the garden from October to February, and if you should never want them no harm will be done. Then six or seven little gardeners might club together, and buy one thumping good plant of any new Grape the very first season, divide the buds at the end of March, and each graft his share of the buds on his own Vine-stocks, and perhaps some of them take a prize for Grapes before persons in their condition of life could even think of buying the plant to try.

There is little fear but the fruit stages in future will be placed against the back wall of the arcades; then as many of the pot Vines as possible ought to be trained against the back wall as Sir H. Meux's gardener did four of his pot Vines that day. I heard a great deal since about the effect of these Vines so trained.

Now we take up the thread of the front stages in M. Linden's small contribution, consisting of *Dichorisandra albo-marginata*, a little different from the leaf of *thyrsiflora*; *Echites argyræa*, a pretty-leaved climber; and some nice little Ferns. Over them was hanging down in fine bloom the smallest-stemmed and one of the most graceful Indian Dendrobes—namely, *D. Falconeri*, but by whom it would be difficult to say.

M. Verschaffelt followed with a *Coleus*, named after himself; but I would seriously urge on him not to have plants so named for the English market, as we cannot pronounce that kind of foreign botany like the Russians and Cossacks. *Dianthus* the same unpronounceable name; a *Campylobotrys*, with a tenfold objectionable and unpronounceable name. If we do not set our faces firm as brass against this style of continental invasion with hard names we must have an extension of pages to take them in. There were, also, *Begonias* and *Cycladias*, but these are now too much overdone, as Ferns have been lately; but there is plenty of room for grand selections in Ferns, and in most plants of great families without hunting out every spot and speck on the rib of a leaf to the third and fourth degrees for the sake of a difference.

Botanical rarities are out of place at exhibitions, collections the same. A careful selection is the grand secret, and should be the aim of all who want to make an impression on the public mind; and here is a selection of *Begonias* by the Messrs. Veitch, the only ones of which I took the names. They were in rows across three steps or stages, three in a row, and this is how they were staged—Marshallia, Nebulosa, and Queen Victoria, one row; President, Vanden Hecke, Duchesse de Brabant, and Eekhaute, next; Count Alfred de Limmingi, Princess Charlotte, and Isis. In front of these stood a lot of seedling *Begonias* down on the path, no one being there, probably, to look after them. Lady Cullum was marked on one, so it must have been from Suffolk, perhaps from Mr. Fish, her ladyship's gardener; but I could see no more names.

Orchids followed, but were not much different from those seen lately at the Crystal Palace. Mr. Stone was first again, and had different. *Erides Lindleyana*, *Cattleya Wagneri*, a fine *Cymbidium eburneum* (a fine thing). *Erides Larpentæ* and his *Cattleya Aucklandiæ* had four blooms on, the largest number I ever saw on one plant open all at the same time, and a little plant of *Barkeria spectabilis*.

Next lot of twenty plants had nothing striking; but in the next class of sixteen plants Messrs. Veitch came out strong, and in their peculiarly good style of growth. *Oncidium Lanceanum*, grown as I never saw it exhibited, just up on a dry, branching block. The *Phalanopsis* in this lot were the most splendid ever seen; but they were all extra. Mr. Woolly followed with *Dendrobium Farmeri*, *limbriatum*, and *densiflorum*, as his best. Mr. Rhodes next with one open butterfly bloom (*Oncidium papilio*), and the pretty *Dendrobium Devonianum*.

The collections of stove and greenhouse plants I never saw placed with better effect, and they never looked so well in any other way I had seen them. As to the kinds and names, one could tell them without ever seeing the show at all, as they are always the same names over again; but some of the plants were extra there, as the *Ixora salicifolia*, in Mr. May's first-prize collection; also his two red *Pimeleas*, *mirabilis* and *Hendersoni*, two very much alike, and too difficult to grow for many to try. I said of Mr. Chilman's *Acrophyllum*, that it was the best specimen of high gardening at the Show in the style of specimen plants.

The *Azaleas* did not tell nearly so well there as at the Crystal Palace. They were too crowded for one thing, but the plants were, many of them, the same. The great battle of the day between monster specimen makers lay between the Messrs. Veitch and Mr. Williams, of the Paradise Nursery, in their specimen Ferns; and here the Messrs. Veitch were most handsomely and very completely beaten for the first time in my notes. Mr. Williams' Ferns (and he had all the *Gleichenias*) measured from 4 feet by 4 feet to 8 feet by 8 feet, that being the extent of his *Gleichenia microphylla*, and he had them in two-foot or three-foot-square boxes, enough for four men to lift on a truck.

A fine specimen plant of *Rhododendron Maddeni*, from Mr. Jackson, deserves special notice, in full bloom, and growing as close as a ponticum. In the race for the best new *Azaleas* since 1856, Mr. Turner took the first prize, and Mr. Ivery again was the only one to compete with him. The quantity of bloom in the former seemed to sway the Judges more than the sorts; but here they are. Mr. Ivery had *Etoile de Gaud*, *Harlequin*, *Model*, *Baron de Vriere*, *Empress Eugenie*, *Flower of the Day*, and *Baron de Pret*, *variegata superba* and *Kinghorni*. Mr. Turner's were—*General Williams*, *Model*, *Duke of Cambridge*, *Prince Jerome*, *Standard of Perfection*, *Queen Victoria*, *Magnet*, *Milou*, and *General Havelock*. These comprise the very cream of the new *Azaleas*.

In the west arcades Messrs. Veitch had the best six kinds of Dracenas, and the Messrs. Lee next. Both had the fine new *Dracena indurata*. Here, also, the Heaths had the best pull. Mr. Peed, who was first, had fine plants of such Heaths as *depressa*, *Massonii*, *eximia superba*, *mirabilis*, *Beaumontiana*, and *obliqua*. Mr. Jackson next, with *Bergiana*, *Humeana*, *depressa*, *Cavendishii*, and *ventricosa superba*; and here, too, Mr. Standish stood second in *Rhododendrons*, Mr. Noble being first in them at the east-end arcades.

Here, likewise, were two collections of immense Ferns, *Gleichenia microphylla* again being the very best of them all in Mr. Baillie's collection, which stood second best, while Mr. Stone was at the top.

At the extreme east stood two large pans of *Disa grandiflora* from the top of Table Mountain behind Cape Town, from Mr. Leach, the greatest effort of prize gardening of all that were at this Show. No one in Britain having yet succeeded in growing this plant to perfection, except Mr. Leach himself, and he says it is as easy as any other plant when the right treatment is given—say a mountain plant from a bog quite as hardy as any of the old Cape Geraniums. He had it out of doors under a hand-light all last autumn, and no plants were ever more healthy or free-looking in their growth. I have patronised this plant from the first to test the skill and patience of our craft; and now I am happy to be able to record that all the difficulties have been entirely got rid of, and that a score of healthy plants of it will soon be ready for twenty of our prize-taking gardeners to begin with, and that Mr. Leach very kindly offers them to any of our enterprising dealers on condition that the proceeds of their sale may be given to the funds of the Gardeners' Benevolent Institution, and surely there will be no lack of gardeners' friends to undertake the benevolent task. The plants will be ready in a few weeks, and application meantime may be made to C. Leach, Esq., Clapham Park.

Another scarce plant was a *Sarracenia flava* with twenty-two leaves, and each leaf ending in a pitcher, from Mr. Barnes, gardener to W. S. Nichols, Esq., Bowden, Cheshire, a fine-done thing certainly; and I see the dwarf dark purple *Narsturtium* I mentioned last week as likely to be a good or best bedder of that race of *Tropeolums*, was from an old Suffolk man—Mr. Coates, now of Brixton. Good luck to him for this contribution to our bedders.

Mr. Turner had here other bedders, *Herald of Spring*, a large, light, Scarlet Geranium; also, *Rose Celestial* (Sanky), in the caste of Rubens, and very promising, and his new Prince of Hesse, the best of the Kingsbury Pet family. Among tall Caeti were four good seedlings from Mr. Robinson, gardener to R. Beynon, Esq., Reading, or near it, of which *Gloriosa florbunda* was the best; *Aurora borealis* and *Hoylei* next, and all with the exquisite flush of *speciosissimus* conspicuous upon them, the plants being like Ackermans.

And now for the 89 yards of variegated and fine-leaved plants in one bank—the finest sight that ever was seen of such subjects; but I was all along here in advance of the Judges, and at that point the French ex-Royal Family came there; and as far as I could make out from their gestures we were one on the merits of the great varied bank, however we may have differed from the Judges, who must have scrutinised the collections more than visitors and fly birds who tell tales and send them to the ends of the earth. Oddly enough the top plants were at the bottom of this bank—twelve splendid stretchers from the Messrs. Veitch. Here they and Mr. Williams were again face to face in fierce combat; and as the champions of the day they began with *Sansiviera zelanica*, 5 feet across; a splendid *Theophrasta imperialis*; *Pandanus javanicus variegatus*, 15 feet through or more, if the leaves were held up and stretched; *Bromelia sceptrata*, the fiercest looking, if not the father of all the Pine Apples; *Cycas revoluta* and other huge Palms; and a *Cyanophyllum magnificum*, with three branchy tops, and up to 8 feet or 9 feet or more.

To these Mr. Williams opposed *Dien edule*, 12 feet across, the most perfect specimen ever staged, and, probably, the most useful to those Mexicans who live on the fruit of it; *Nepenthes lavis*, very large; *Aralia Sieboldi* and *Cyanophyllum magnificum*, over 10 feet in height.

Between the combatants stood Mr. Cutbush, of Highgate, with his peaceful dozen, of which *Marattia eicutafolia* was the best. Then follows Mr. Sims, of Foot's Cray, Kent, with twelve magnificent Ferns in huge tubs, and here again the lovely *Gleichenias* were in the first rank of merit; also, an

immense *Dicksonia antarctica* and *Cibotium Schröderi*, *Cyathea dealbata* and elegans, and *Dicksonia culcata*. He must have a Crystal Palace to keep such plants. Then Messrs. Milne & Co., whose best variegated were *Caladium argyrites* and *Begonia Marshallii*. The Messrs. Lee followed with a fine *Alocasia*, *Cyanophyllum*, *Platyserium grande*, their fine *Cordylines*, variegated *Yuccas*, *Caladiums*, *Ropalas*, and a gigantic Lily, but only to be seen. Then Mr. Hedge, nurseryman, Norwich, the best of whose dozen was a *Cissus* and the variegated *Pandanus*. Mr. Jackson came in here with very large and most splendid specimens, as *Aspidistra lurida*, the best lurid in England; a *Dien* not quite so big as Mr. Williams'; the rare-to-be-seen *Heliconia metallica*; *Monstera deliciosa*, much more cut and slashed on the edges than *Monstera pertusum*, *alias* *Philodendron pertusum*, *alias* *persutum*, *Caladium seguinum*, very large; *Phœnix humilis*, *Livistonia Borbonica* and *Cerypha australis*, three Palms which are wintered yearly in a house with *Camellias*, *Azaleas*, *Dicksonia antarctica*, and a fine *Croton variegatum*. Mr. Gunner, gardener to W. F. Woolly, Esq., Kensington, next, with a seven-foot or eight-foot-stemmed tree Fern, *Dicksonia antarctica*, and *Ropala corcoradensis* as his biggest.

Then tens began with Mr. Robinson, who had a *Cyanophyllum*, with four branches at the top, and, by the way, when *Cyanophyllum* begins to branch, or is allowed to do so, the second name is gone—the magnificum is out of it then. A clean, clear stem of from 7 feet to 10 feet, and all the leaves as perfect and as clean and fresh-looking as the last leaf, is the only condition in which *Cyanophyllum* can be classed as a magnificent toy; and I was pleased to find the Judges, who pressed hard on my heels here, were of the same opinion.

The next ten from Cheltenham. Mr. Hamilton, gardener to F. P. W. Butt, Esq., an immense screw Pine, *Pandanus utile*, and a most beautiful-leaved *Cupania filicifolia*, were his dons, most different. The next ten from Miss Burdett Coutts' garden much the same as at the Crystal Palace. Next, Mr. Nicholson, gardener to S. Majoribanks, Esq., small, but well-grown stuff, of which *Caladium argyrites* and *Pteris argyrea* were the best or prettiest. Here Mr. Bowman, gardener to G. Hooker, Esq., in his collection of ten took the shine out of the nurserymen and all other gardeners with the most perfect specimen of *Cyanophyllum magnificum* that is under cultivation under the sun. Such a plant was never seen before; it stood 10 feet or 12 feet in height, and the lowest leaf falling over the pot was as fresh as the top one. Mr. Bowman and his employer will excuse me for saying how wrong it is to label the names for a public exhibition on fancy cards.

Mr. Young, gardener to Mr. Barclay, of Highgate, was next; and *Canna discolor* was different from the above; and Mr. George Young, gardener to W. H. Stone, Esq., Dulwich, followed. His two *Theophrastas*, *imperialis* and *macrophylla*, and *Aralia Sieboldi* and *reticulata*, were his best and most different.

Mr. Paget, gardener to J. S. Craigie, Esq., Chigwell, Essex, had one plant different from all the rest—*Hippomane longifolia*, 10 feet or 12 feet high, with rough long leaves like those of the *Loquat*, and spined like a *Holly*, and a drop of its juice might kill the strongest man in Essex, these *Hippomanes* being deadly poison among *Spurge-worts*.

D. BEATON.

HOW TO FLOWER CALLA ETHIOPICA BY CHRISTMAS.—Bring your plants to rest in midsummer, by exposing them to the full sun in a place where they are sheltered from rain. Do not water them. Middle or end of August take them out of pots; clean the rootstock from all decayed matter and from young accretions; repot in good, fertile soil, rather heavy, but part sandy; water and expose them to the sun in the open air. Water freely till the season compels you to house them. Take some to the warm house; put them in a sunny place very near the glass and they will remain compact. Getting stalky spoils their beauty. The more they get isolated in the summer, nay, the more they get wasted, the sooner will they flower in the warm house. Now take other plants which you housed in the greenhouse to the warm house, and you get a constant succession of flowering plants. Carry back to the greenhouse those which have flowered, and they will flower again at the general period of vegetation in the spring; often they will even flower a third time. The sun not only elicits plenty of flowers, but is a most

necessary agent in opening them. That accounts for stillborn flowers in sunless places. — (W. SCHOENBORN, in *Deutsches Magazin*.)

ROYAL HORTICULTURAL SOCIETY.

JUNE 11TH.

FLORAL COMMITTEE.—Probably the fact of this being only the day previous to the great June Show of the Royal Botanic Society militated against the production of many novelties. But whether it were the cause or not, the fact remains the same; for, save the remarkable collection sent home by Mr. R. Fortune, there was, comparatively speaking, nothing shown.

Mr. Veitch, of Chelsea, sent two *Fuchsias* with white corollas—one of somewhat elegant and free habit, called *elegans flore pleno*, the corolla being double or semi-double; the other *elegans alba*; but neither of them was considered deserving of mention. Also a very brilliant-coloured spotted *Pelargonium*, called Topping's Lady Churston; the colour deep orange scarlet with intense black spot. It seemed as if from one of the French varieties crossed with something of the old Victory strain; and, although defective in shape, it received a Label of Commendation as a useful decorative plant.

Mr. B. R. Cant, of Colchester, sent some blooms of a magnificent Tea Rose, which he stated he had under the name of *Aurora*, but which had been lost to the public, and which he proposed sending out again. The Committee entertained a very high opinion of it, but wished to compare it with another Rose of the same class, which it was supposed to resemble, before deciding on it. It was, therefore, reserved for next Meeting.

Mr. W. Paul, of Waltham Cross, sent a seedling Rose raised from Jules Margottin, of good properties and vigorous habit, of a bright rosy crimson shade of colour, good shape, cupped, and of good substance of petal. He proposed to call it *Beauty of Waltham Cross*. For this a First-class Certificate was awarded.

Mr. Melville, of Dalmeny Park, sent *Nemophila discoidalis* and two *Tropaeolums*; but they were not considered deserving of notice. There were also some seedling *Pelargoniums* from Bodmin and Pansies from somewhere else, of which we can only charitably hope the senders had seen nothing of the advance in either flower for the last twelve or fourteen years.

Mr. Standish, of Bagshot, contributed the collection of Japanese plants, sent home by Mr. Fortune, and several of which had already received the Medal of the Society. Those thus rewarded did not come under the notice of the Committee. Of the remainder, *Podocarpus microphyllus foliis variegatis*, received a Label of Commendation.

A First-class Certificate was awarded to a very pretty Holly-like shrub of very dwarf habit, *Osmanthus aquifolius nanus foliis variegatis*. A variegated variety of *Illicium floridanum*, received a Label of Commendation; and a First-class Certificate was given to a highly ornamental species of *Eurya*, broad-leaved, the young leaves of which were beautifully marked with gold and red stripes. These were all fully described by Mr. Beaton, in the report of the Horticultural Society's opening Show, where they were exhibited, so that it is needless further to allude to them; and with some *Gloxinias* from the Society's Gardens, comprised all the subjects exhibited.—D., Deal.

FRUIT COMMITTEE.—A Meeting of this Committee was held on Tuesday, June 11th, Mr. Charles Edmonds in the chair.

Mr. Standish, of Bagshot, exhibited three large and handsome bunches of Ingram's Hardy Prolific Muscat Grape; they were well shouldered, and the berries were of good size, of a deep black colour, and with a fine thick bloom; the flavour also was excellent. From the fine condition of the fruit, and the high opinion that was expressed at former Meetings upon the merits of this variety, the Committee awarded to it the special prize of £5, placed at the disposal of the Committee by Mr. W. Wilson Saunders. Mr. Standish also exhibited very fine bunches of white Frontignan Grapes, and four handsome Vines in pots, the latter of which were awarded a Certificate of Commendation.

The Prince Consort, President of the Society, sent a dish of very fine fruit of the Mango; these were large, oval, and somewhat flattened on the sides, the flesh was thick, very juicy, and richly flavoured.

Francis Darwin, Esq., of Kirkhill Hall, near Ottery, presented a collection of forty-nine sorts of Kidney Beans, collected in Madeira, all of which have been sown in the Garden.

ARE LARKFIELD RIVAL AND VIRGINEUM THE SAME VARIETIES?

In the autumn of 1858 or the spring of 1859 a Mr. Davies sent out a new seedling forcing *Geranium* called "Larkfield Rival." Allow me to call your attention to the two *Geraniums* here sent. A friend of mine, of much greater experience and longer practice, assures me that he has known *Virgineum* for near twenty years. Well, where is the difference? It is too bad. Florists should not "diddle" us like this. I know we are almost prepared to swallow anything; but—"burnt bairns fear the fire"—we shall get suspicious, and then will come a day of retribution.—NATHAN H. POWNALL, Gardener to Wm. Sanday, Esq., Holme Pierrepont, Nottingham.

[The specimens sent were certainly identical in truss, petal, and leaf.—EDS. J. H.]

NEW AND RARE PLANTS.

AMOMUM CLUSII (*Clusius's*, or *Golden-flowered Grain of Paradise*).

Nat. Ord., Zinziberaceæ. *Lin.*, Monandria Monogynia. Native of the west coast of Africa, Fernando Po. &c. It blossoms in December. Flowers bright yellow.—(*Bol. Magazine*, t. 5250).

STREPTOCARPUS SAUNDERSII (*Mr. Saunders's Streptocarpus*).

Nat. Ord., Cyrtandraceæ. *Lin.*, Diandria Monogynia. Native of Natal. "May, perhaps, bear the temperature of a warm greenhouse in summer. Its great charms are its size, the rich purple rose colour of the under side of the foliage, and the delicate greyish-blue of the numerous flowers, three plants in one pot producing at one time one hundred and twenty-five." It commences blooming in April.—(*Ibid.*, t. 5251.)

DIMORPHOTHECA GRAMINIFOLIA (*Grass-leaved Dimorphothea*).

Nat. Ord., Compositæ. *Lin.*, Syngenesia Polygamia-necessaria. It has also been called *Calendula graminifolia*, *Aretotis tenuifolia*, and *Bellis africana*, being "The African Daisy" of our forefathers. It was brought to Holland from the Cape as long since as 1698; and we quite agree with Dr. Martyn, who said fifty years ago, "Though it has been long in the English gardens, yet it is not so commonly seen there as it deserves, there being few plants which continue so long in flower." It begins blooming in April, and continues to do so, though not so abundantly, until late in autumn. The flowers within side are white, with a purple centre, and a coppery purple outside. They are of the size of the common *Marigold*. It may be raised both from seeds and cuttings. Sir W. Hooker says, "It might make a good summer bedding plant if the stems were pegged down."—(*Ibid.*, t. 5252.)

STENOCASTER CONCINNA (*Neat Stenogaster*).

Nat. Ord., Cyrtandraceæ. *Lin.*, Didynamia Angiospermia. "This pretty little plant flowered in Messrs. Veitch & Son's Nursery at Chelsea, in April last, but it is not known from what country it came, nor by whom it was imported." Flowers white, tinted with pale lilac.—(*Ibid.*, t. 5253.)

BEGONIA PHYLLOMANIACA (*Proliferous-stemmed Begonia*).

It has, with the same specific name, been included in the genus *Knesbeckia*. *Nat. Ord.*, Begoniaceæ. *Lin.*, Monœcia Polyandria. Its native country is not known. Its flowers are very pale pink, but neither they nor the leaves are particularly conspicuous. Its "extraordinary peculiarity is, that it produces from the stem, branches and petioles, innumerable leaflets, which, on being detached and placed on moist soil, produce roots and become plants."—(*Ibid.*, t. 5254.)



SEED-DRILL.—A very simple, and at the same time a very expeditious and effective mode of planting small seeds, is to put them in a wine-bottle, with a quill inserted in the cork, as shown in the cut. If the seeds are extremely small, and it is necessary to sow them thinly, mix the seed with dry sand before it is put in the bottle.

SPUR *versus* LONG-ROD SYSTEM OF VINE PRUNING.

Is it true that larger and much finer bunches of Grapes can be obtained by pruning the Vine on the long-rod system than on the spur system? and is not the long-rod system of pruning much more simple than the spur, and have not the Vines a much neater appearance? Also, can as great a number of bunches be grown on a Vine by the long-rod system as on the spur system? How many feet long will a rod grow in one season, being pruned on the long-rod system? Does a Vine require more nutriment when pruned on the long-rod system, on account of its having to support a growing rod as well as a crop of fruit, or not? And why, if the long-rod system produces larger bunches, is the spur system of pruning more generally adopted? On which system of pruning are those large bunches of prize Grapes one sees in Covent Garden produced?

Which gives the finest fruit and the largest quantity—a tree grown as a pyramid or as a bush in an orchard-house, of course both being in the same size pots?

Can hot air be introduced both under the borders and above, at the same time, into a house heated by the Kiddean system? And can a great amount of heat be introduced into a house by the Kiddean system?—*HESPERTS.*

[We do not think there is anything at all satisfactorily established as to the superiority of the long-rod system in producing larger bunches than the spur system, if quantity and quality are taken into consideration; nor do we think such a fact is likely to be easily established—inasmuch as a fruitful healthy Vine can only carry and ripen to perfection bunches in proportion to the space occupied by the roots in the ground, and the foliage in the atmosphere of the house fully exposed to light. Every well-ripened bud will then produce fruit, whether that bud be on a short spur or on a long rod. This fact lies at the foundation of rightly pruning many climbers and creepers as well as Vines. If the wood is not well-ripened the previous season, prune how you will, the flowers and fruit will not come. If the plant is growing extra vigorously, and the roots are getting beyond much atmospheric influence, there will be an advantage of the long-rod system, inasmuch as one shoot in summer would be able to get its leaves more fully exposed to the sun than leaves from a multitude of shoots, and consequently the wood would be harder and the buds more matured than when the same thing had to be done with a number of shoots: hence, in such circumstances, Vines will bear well on the long-rod system, when, without considerable care in pruning in summer and disbudding, they would not yield so well on the spur system. One reason is, that on the rod, when well exposed and allowed a fair amount of room—after a few small buds near the base, which will generally be barren in the following year, the other buds in the axils of the leaves will be pretty regular as to plumpness; and all these, or what is deemed necessary, will be retained: for when practising that mode we used to thin out fully the half of the buds in the winter pruning, leaving them regularly on the shoot; whilst, by cutting close back to a single or to two buds on the spur system, the largest and best-swelled buds are all cut away. When the roots, however, are all right, in a healthy Vine this is of little consequence, as the whole plant is so well matured and so stored with fruitful juices, that it is next to impossible to prune wrong. Even in a healthy Vine, and the roots near enough the surface to make it fruitful, we consider that very large bunches can only be obtained by leaving few of them; and on the whole, our experience and observation would lead us to give the preference for this purpose to long-rod instead of spurs, and thinning out the buds well before starting into growth. Here, however, in the way of caution, we must just notice another supposed fact in the way of observation—and that is, that though bunches on long rods generally show stronger at first than those on spurs, the latter generally swell and round off better at last. This may be owing to the sap flowing more freely in the young shoot in spring, and also to the larger surface of the old stem in spur pruning, which, though a little more languid in spring, supplies a larger surface for the young shoots to draw upon in autumn. This, however, may be deemed anything but orthodox; though in many instances we have noticed the fact, that though the long-rod shows the best, the spur mode often matures the best; but in practice as respects bunches, there is but little to draw between them. If there had, our best gardeners would not have given such countenance to the spur system.

Instead of agreeing with our correspondent as to the simplicity and neatness of the rod system, we would undoubtedly ascribe these advantages to the spur mode, unless in some very small house or pit, or on a wall not more than 4 feet or 5 feet in height. In such circumstances, treating the Vine as we do a Raspberry stool, would, in many cases, be best—leaving one bearing-shoot, selecting a cane for summer growth and removing all others, and cutting out the bearing-shoot of this year as soon as the fruit was gathered, and giving all the room and light possible for the shoot of the following year. Once establish a Vine on the spur system, and what can be simpler? The shoots are supplied on each side from the spurs. Laterals are duly regulated merely to promote root action, and removed when maturing, and not growing, is the object; and in the autumn and winter the shoots are cut back to a bud, to furnish the bearing-shoot for the succeeding season. When the main stem gets too old, or some of the spurs begin to fail, it is easy to renew it by training up a young shoot from the bottom; and, as it grows, the laterals on the bearing-spurs may be mostly renewed, which will give more room to the young shoot, and the free growth of this shoot will keep up a brisk root action. A similar mode must be adopted in a regular rod system; but then it is not so simple as mere spur pruning. The rod this season, with its side-bearing shoots, must be attended to; a young shoot from the base must be selected for next year, and as it grows its laterals must be stopped, all the laterals in the side fruit-bearing shoots must be removed, and even barren side shoots, as the young main shoot for next year reaches them. There will be the care required, that the point of this young shoot shall not be injured; for, if so, the upper part, though it breaks again, will be weaker than the lower; and if all this is guarded against, and a nice shoot some 15 feet or 20 feet in length is procured and well ripened in the autumn, and left to take all the growth next year, the fruiting-shoot of this year being removed as soon as the fruit is gathered—there is then the care and trouble to get this shoot to break its buds regularly all its length, which, if in a house, and especially if forced early, it will not, if left alone, be inclined to do naturally, but the highest buds will have a tendency to break first and take the lead; so that, to make sure, the shoots should be laid horizontally, or perhaps twisted a little to make the breaking regular. Out of doors, as in a late house, these precautions would not be so necessary; but all these little securities for regular breaking and attention in training are so many drawbacks from simplicity and neatness.

These things attended to, however, we do not think there is a pin to choose upon between the two systems, as to the number of bunches that may be grown, or as to the nutriment the plants will require. When either is duly carried out, there is not much difference in the long run as to the amount of foliage the Vines carry. In spur pruning, room must be found for laterals at first. In the long-rod the laterals on the bearing side shoots may be gradually renewed, as the young stem for next year takes the running.

The shade given, however, will be rather more on the rod system than in spur pruning; and the latter is, therefore, best fitted for a greenhouse vine, in which so many of our friends contrive to grow many plants and yet get good Grapes in autumn.

In a vigorous, healthy Vine there is hardly any bounds to the length a Vine shoot will grow in the season. We have had them grow from the bottom to the top of the house, and extend along the back wall to a distance of 40 feet or 50 feet in all; but such a length is anything but desirable. From 12 feet to 20 feet ought to be considered the longest length for a well-ripened matured shoot in one year; and, if extra strong, it is better to encourage side laterals at first instead of greater lengths, these laterals being removed gradually as the wood begins to ripen. When the length of a rafter exceeds 20 feet it will, in general, be better to have two rods in the length of the house; and, in this case, the shoot would be cut out every two years instead of every year.

We have known splendid fruit grown on the young shoots that adorned exhibition tables, and Covent Garden likewise; but we have also known so many fine bunches produced on spurs that we cannot answer our correspondent's question satisfactorily; perhaps some one now more intimate with Covent Garden will supply our deficiency. Meanwhile, let us observe that if splendid bunches above all things are desired, care must be taken to have few of them. The large-bunch system will not suit when a bunch

or two a-day are wanted for the table, and but little space to grow them in.

PIRAMIDS *versus* BUSHES IN ORCHARD-HOUSE.

The question as to quantity and quality of trees grown on these modes in an orchard-house, and in similar sized pots, is hardly a fair one, unless space was also taken into consideration. Trees in the same sized pots may be equally fruitful, though the plants in one pot be double the size of the other; and, to be equally profitable, should carry nearly double the quantity of fruit. Trees may be so nipped in as to bear from the pot to the top, rising up almost as straight and round as a gun-barrel, and scarcely wider at any part than the diameter of the pot. More of such plants can stand and receive light and sun on all sides, in the same space, than pyramids with a wide base and tapering upwards to the point, and more of the latter can be accommodated than flat-headed wide bushes. All the modes will yield good fruit in proportion to the sun and air they receive. In proportion to the mere size of the pot, without taking space into consideration, we would place the bush first as to quantity; the wide-based pyramid second; and the tall, upright, narrow pyramid third. But taking space and quality as the first considerations, we would place the upright pyramid first; the wide-based pyramid second, but first for beauty and neatness; and for all these united, the bush form third.

KIDDEAN HEATING.

We presume it will be as easy to heat the space under the border as above it by the Kiddean or any other system, provided the source of heat is placed sufficiently low that in either case the heat will be able to ascend. In heating from a chamber, it would be as well to have separate openings for the bottom and top heat. Whatever your mode of heating—furnace, flue, hot-air chamber, or hot water—there will be no difficulty if the source of heat is lower than the place to be heated.—R. FISH.]

CULTURE OF THE GRAPE VINE.

(Continued from page 177.)

CULTIVATION IN A GREENHOUSE.

THE kinds best adapted for a greenhouse are Black Hamburgh, Lady Down's, a Grape that keeps well, West's St. Peter's, Royal Muscadine, Golden Hamburgh, and Dutch Sweetwater. More kinds might he tried, but the above are good croppers and sure to answer.

PLANTING.—The best season is March, just before the buds break.

PRUNING.—The best mode of pruning for a greenhouse is undoubtedly the spur system; and for this reason, that the foliage is less in quantity, and, therefore, does not shade so much the plants that are in the house than when the single-rod system is adopted.

The *Pruning in Summer* consists in stopping the laterals at the third or fourth joint, and, when the side eyes burst, to stop these again and again throughout the growing season. Every fruit-bearing shoot should be stopped at the second joint above the bunch. When the fruit begins to colour, the first-made laterals should be cut clean off, in order to give more light to the leaves and fruit.

Autumn Pruning.—The Vines in autumn may be half-pruned by cutting off all the laterals in order to ripen the wood and fill the buds with fruit-bearing sap. As the leaves turn yellow they should be removed.

Winter Pruning.—This may be done in any of the winter months after the fruit is all gathered and the leaves all fallen off. At that season the greenhouse plants will all be housed. I always found it more convenient to prune the Vines by loosening them from the rafters in succession, bringing each one down into the walk or path, commencing at one end, it is no matter which, pruning each side shoot to one eye as directed before, and when that Vine was pruned, clearing away the loose bark and applying a paint made of water thickened with sulphur and clay. Use a softish brush and see that every part is covered with the sulphur. This mixture is a great preventive, if not a cure, for mildew, and destroys scale and red spider. Then tie the Vines down to the front in a bundle. In that position they may remain till the buds begin to break. By being thus trained horizontally at the lowest part, and consequently the coolest part of the house,

every bud will be in an equal temperature, and will all receive an equal amount of stimulating sap: hence the lower part of the rafter will be as well furnished with fruit as the highest, and the berries will swell almost equally as fine as those on the higher part of the house.

Spring Management.—I have often allowed them to remain in this horizontal position till I could stop the laterals, but when I did so I was obliged to be very careful of the young shoots, for in their young state they are easily slipped off at the base. There is, however, a great convenience in doing this work when the Vines are so handy and easily examined. As soon as one Vine was operated upon—that is, the superfluous shoots rubbed off, the fruit-bearing spurs stopped, and, if long enough, tied slightly to the main stem—that Vine was tied up to its proper rafter, and the next taken in hand, and the same operations gone through till every Vine was done. It requires at least two persons to do this; one to hold the Vine, and the other (the more experienced hand, of course) to thin out the shoots and stop those that are left. In lofty greenhouses crowded with plants, this spring dressing when the Vines are tied up to the rafters before it is done is a very difficult and troublesome affair. I therefore recommend the leaving them tied down to the front till they have made such a growth as will enable the cultivator to give them their first dressing so conveniently. With moderate care he will accomplish this safely, and certainly better and more correctly.

Summer Management.—This consists in regularly stopping the laterals and keeping them tied in neatly to the wires. Speaking of wires reminds me that I have not yet described them. There should be three—one in the centre to tie the main stem to, and one on each side of it to tie the laterals to. Each wire should be about 9 inches from the glass, and 6 inches from wire to wire. To keep them in position, there should be strong iron pins, sharp at one end, or made with a screw, and an eye at the other end, the wires run through those eyes, and they keep the wires in their proper place. If the wire is pretty strong, the pins will do if placed 6 feet apart. Thus trained, when the Vines are in full bearing all their length, the bunches hang in two straight rows, and are very ornamental. The laterals should not be trained at right angles, but rather slanting upwards. If the Vines are very fruitful I would never allow more than one bunch to a shoot. The spurs should be as nearly as possible a foot apart, and at equal distances. When the Vines are in bloom, the air of the house should be moderately dry. In general, the air should be more moist during the night than during the day. Alternate moisture and dryness will cause the anther coverings to contract and expand, and eventually to crack and open when the pollen is ripe and ready to be shed upon the stigma. If all this has gone on properly, the berries will set freely and will soon begin to swell. Then is the time to commence thinning them—an operation that must not be neglected. Thin freely, and you will have larger berries, but handle the berries that are left as little as possible. Most of the kinds proper for a greenhouse have bunches with large shoulders. The bunch will be more symmetrical, and each berry will ripen more equally if those shoulders are tied up and spread out equally on each side. Some use pronged sticks for this purpose, but I judge that soft matting is the better article, and, besides that, the branches of the bunch can be spread out more equally. While the thinning is going on examine the laterals and ties, and top the one and adjust the other.

Syringing.—During summer, before the Grapes begin to colour, give them a good syringing once or twice a-week, especially after a hot, sunny day.

Air, of course, will be given very freely in the early stages of growth, because of the plants; but as soon as the greenhouse plants are removed out of doors towards the end of May or beginning of June, less air will do for the Vines. The stage of the greenhouse will then be filled with plants, such as Balsams, Cockscombs, &c., that will bear a higher temperature. In general, the rule should be to give air as soon as the thermometer indicates 65°, the maximum heat at noon should never exceed 70°. In cold, damp weather, a little artificial heat from the flues or hot-water pipes will be of great service.

When the Grapes are fully ripe, they will be attacked by wasps and other fruit-eating insects. The best remedy is to cover the air-giving openings with fine netting or canvass. Even a door of canvass will be of service to keep out those intruders. As the Grapes in a greenhouse will hang a long time (I have had them good till Christmas) the air in the

house should be kept as dry as is consistent with the health of the plants. No dead matters should be allowed in the house at all, such as yellow decaying leaves, or moss, or anything that will keep damp. The floors should be kept dry and clean, and abundance of air given during every dry day. Fortunately, all these precautions are equally as necessary for the health of the plants, as for keeping the Grapes from moulding and rotting on the Vines.

I have not mentioned *the border for Vines in a greenhouse*. The reader will remember what I said on Vine-borders, how they should be drained and made, but he might inquire, Will the border require covering to protect the roots? If it is properly drained, the only covering it will need is one that will keep off the heavy rains during autumn and winter. As the Vines in a greenhouse are not forced, but break naturally with the heat of the spring sun, which heat is applied also to the roots simultaneously, there is no necessity to heat the soil artificially. It is early-forced Vines that require this, in order that root action may be going on at the same time that the top action is set in motion by internal heat. On that point, however, I shall have much to say when I come to the stove and vinery culture of the Grape. T. APPLEBY.

(To be continued.)

OUR CULTIVATED SOILS.

(Continued from page 140.)

RED LOAMY SOIL.—The colour of a soil has really less to do with its fertility than is generally supposed, for it often happens that the colouring matter exercises little or no influence over it: consequently we may conclude that a good soil, like a good horse, cannot have a wrong colour. Certainly a dark-coloured soil absorbs more of the sun's rays, and becomes sooner heated than a light one, and in some districts a reddish-coloured soil is regarded the best; but this must not be confounded with the red clays found in some districts, which are amongst the most obstinate and least productive soils we have to deal with; neither ought we to include the red sandy soils in this class, which are more or less common in the north-western counties. One of the most agreeable working soils I ever had to deal with was of this description; but they are proverbially "hungry soils"—i.e., requiring manure very often, the porous character of the subsoil allowing everything to percolate through. A red loam is stiffer than this, and is said to produce excellent Wheat and other grain; but as I am not much acquainted with it, I cannot say much of its suitability for garden purposes.

BLACK SANDY SOIL.—There are some very rich soils of this description in various places; but most commonly in those level tracts of land bordering rivers, or some extensive plain, are of this character. The northern part of Cheshire and adjoining part of Lancashire is all of this deep, rich, black, open soil, producing the best of turf, and Potatoes. Carrots, Mangold Wurtzel, and other roots are grown in it to great perfection, and, in fact, such a soil seems available for almost everything. In the garden way Celery of the best description is grown; and the Peach, Grape, and Pine thrive to a degree not known in any other soil. A similar soil to this borders the Thames for a considerable way upwards; but it is not to be confounded with the black peaty soils of the few districts which contain scarcely a stone, and which are of so dead a level as hardly to allow of any drainage. Neither is this soil like the marsh soils of some of our coasts, which contain within themselves abundance of saline matters. The dark sandy soil alluded to partakes more of the character of a friable loam, easily breaking in pieces, yet containing sufficient unctuous matter within itself to retain moisture. The subsoil is often, but not always, sand, or a sort of sandy clay. Fruit trees—as Pears, Plums, Gooseberries, and Currants thrive remarkably well on it, and most of the gross-feeding vegetables are also at home here. As a soil to work it is pleasant and agreeable, and the teeth of the rake pass so smoothly through it, that the workman often sighs after it again when he removes to a soil of an opposite description.

DRY GRAVELLY OR STONY SOIL.—There are a great variety of these—some tolerably fertile, others hungry and ungrateful. So much depends on the subsoil and situation that no general rule can be laid down bearing on this; but in general a shallow gravelly soil with a similar bottom is unproductive, the substratum being often composed of materials of a pernicious character, while some of the stony soils are as much the other

way, trees and shrubs and many cultivated crops thriving remarkably well on them; so much depends on the character of the substratum. When this contains nothing hurtful to vegetation, hedges grow luxuriantly, and Cherry trees, Filberts, and sweet Chestnuts thrive, and many shrubs stand the winter well on such soils. But in hot, dry summers vegetation suffers much, excepting deeply-rooted trees, and even they are stunted when the subsoil is of a pernicious or impenetrable kind. Yew trees, with now and then Junipers, and perhaps Heath, abound, and Beech trees, Scotch Fir and Birch indicate a soil far from being a friendly one to the husbandman. Much, however, depends on the district; if in the west of England where they have much rain, vegetation will prosper better on such soils than in a drier locality; but at the best it is only a sorry soil.

LIGHT-COLOURED SANDY SOIL.—The valleys bordering many rivers and streams consist of this kind of soil, which is, doubtless, the accumulation of sandy matter washed down from the hills on each side, or deposited there by floods. This forms an excellent garden soil, produces most things in perfection, and corn and other products ripen tolerably early, and in good condition on it; and as it is generally porous enough to permit the water to drain off, so also it is deep enough to allow of a deep tillage to enable the roots of all descriptions of plants to penetrate below the reach of hot, dry summers, such soils are always favourites, and productive. On the other hand, low situations between hills suffer most from spring and autumn frosts; but even with that drawback they are early, compared with the rising grounds on both sides. Of course, care must be taken that they are not unrelieved with water. A marsh by the side of a river is a widely different thing from the soil just described.—J. ROBSON.

DIAL OF FLOWERS.

I SHALL feel very much obliged if you can give me any information concerning the flowers that open at every succeeding hour of the day, thereby forming a complete "Dial of Flowers." For instance: The Hibiscus opens at twelve at noon, and the Marvel of Peru at four A.M.—A SUBSCRIBER AND AMATEUR OF FLOWERS.

[We shall be obliged by any one who has made observations upon the diurnal opening of flowers communicating to us the results of those observations. The following is extracted from the "Lexicon" of the Rev. P. Keith:—

"Of many plants it is not enough merely to say that they open their flowers in the morning, and shut them again in the evening. They have fixed and appointed periods of opening and of shutting; some earlier in the day, and some later, but always at the same hour for the same species; and this succession of periods Linnaeus, in his love of metaphor, denominated the *Horologium Floræ*. Flowers requiring but a slight application of stimulus open early in the morning; while others requiring more open somewhat later. Some do not open till noon, or till an hour later still; and some, whose extreme delicacy cannot bear the action of light at all, open only at night.

"According to Linnaeus, the following plants open and shut their flowers as follows (*Phil. Bot.* 273):—

Tragopogon luteum	opens at 3 A.M. and shuts at 9 A.M.	
Crepis tectorum	4	10
Sonchus oleraceus	5	11
Sonchus repens	6	12
Lactuca sativa	7	10
Hieracium pilosella	8	2 P.M.
Calendula arvensis	9	3
Mesembryanthemum neapolitanum	10	3
Ornithogalum umbellatum (Dec.)	11	3
Most Mesembryanthemums	12	"
Scilla pomeridiana	3 P.M.	
Silene noctiflora	6	
Cereus grandiflorus	7 or 8	
Convolvulus purpureus	9 or 10	

"The above flowers are said to be equinoctial, because they open at a certain fixed hour of the day, and shut at another, and so on, for many days in succession, with a few exceptions; though we do not after all see the propriety of the term. But some flowers open only to expand and to fall in the course of one day, or at least to open no more, such as those of Cistus and Linum, and such are said to be ephemeral.

"Is light the sole cause of the above phenomena, or is it attributable partly to heat? De Candolle regards it as being attributable to the action of light solely. He observed that flowers opened at the same hour, whether in the open air or in a

hothouse. He placed certain flowers under water, and they opened at the same hours as when in the open air.—(*Phys. Veg.* ii. 486.) Yet it has been ascertained that the flowers of plants which are removed from a warmer to a colder climate, expand at a later hour in the latter than in the former. Thus a flower that opens at six o'clock in the morning at Senegal will not open in France or in England till eight or nine, nor in Sweden till ten. A flower that opens at ten o'clock at Senegal will not open in France or in England till noon, or later, and in Sweden not at all; and a flower that does not open at Senegal till noon or later, will not open at all in France or in England. This seems as if heat, or the want of it, were also instrumental in the opening or shutting of flowers; though the opening of such as blow only in the night cannot be attributed either to light or to heat.—(*Famill. des Plant.* i. 104. 1773.)

"But the opening and shutting of some flowers depends not so much on the action of the stimulus of light as on the existing state of the atmosphere, and hence their opening and shutting betokens change. If the Siberian Sowthistle shuts at night the ensuing day will be fine; if it opens it will be cloudy and rainy. If the African Marigold continues shut after seven o'clock in the morning, rain is near at hand; and if *Convolvulus arvensis*, or *Anagallis arvensis*, is even already open, it will shut upon the approach of rain—the last of which, from its peculiar unscopability, has obtained the name of the Poor Man's Weather-glass."

REPORT ON THE GARDEN PEAS,

GROWN AT CHISWICK DURING 1860.

By ROBERT HOGG, LL.D., F.R.H.S., Secretary to the Fruit Committee.

(Continued from page 139.)

47. Lynn's Wrinkled MarrowNUTTING & SONS.

The plant is a robust grower; 3 feet high, and with dark green and much blotched foliage. The stem is simple, producing from twelve to fourteen pods, which are in pairs, and contain from six to eight Peas in each. The ripe seed is white, wrinkled, and with a black hilum, like the Egg Pea.

Sown February 19th; bloomed June 28th; slatted July 6th; and ready for use July 22nd.

This is a very hardy variety, and as such is grown rather extensively in the neighbourhood of some of the manufacturing towns in the north; but it is not a desirable sort.

48. Knight's Dwarf White...NOBLE, COOPER, & BOLTON.

The plant is a strong grower, 2½ feet to 3 feet high. The stem is much branched, and the foliage deep green and much blotched. The pods are produced in pairs, and are from twelve to sixteen on a plant, containing six to seven large Peas in each. The ripe seed is white and wrinkled.

Sown February 19th; bloomed July 1st; slatted July 9th; and fit to gather July 24th.

49. Knight's Tall White...NOBLE, COOPER, & BOLTON.

This is a strong and robust grower, 6 feet to 7 feet high. The stem is much branched, and keeps on growing and producing pods till late in the season. The foliage is dark green and much blotched. The pods are produced in pairs to the number of twelve to eighteen on a plant, and they contain from seven to eight Peas in each, which are very closely compressed. The ripe seed is white and wrinkled.

Sown February 19th; bloomed July 1st; slatted July 9th; and fit for gathering July 24th.

VII. GREEN MARROW KNIGHT'S PEAS.

Ripe seed mixed white and olive. Foliage dark green and blotched. Pods dark dull green, very glaucous.

50. Ne Plus Ultra.....NOBLE, COOPER, & BOLTON.

SYN: *Jeyes' Conqueror*.....NUTTING & SONS.

Payne's Conqueror ...HURST & M'MULLEN.

This is of a strong and robust habit of growth, 6 feet to 7 feet high, and with a branching stem and dark green blotched foliage. The pods are from twelve to eighteen on each plant, mostly in pairs, and contain seven very large Peas, which are of a dark, dull green colour, like those of the Green Marrows. The ripe seed is mixed white and olive.

Sown February 19th; bloomed June 16th; slatted June 26th; and fit for gathering July 10th.

This is one of the best Peas in cultivation, being an abundant bearer, as early as the Early Green Marrow, and having dark-coloured pods and Peas similar to those of that variety.

51. General WyndhamNOBLE, COOPER, & BOLTON.

SYN: *Buckley's Gen. Wyndham* HURST & M'MULLEN.

The plant is of a robust habit, 6 feet to 7 feet high, and frequently branched. The foliage is dark green and blotched. The pods are either single or in pairs, and number from ten to fourteen on each plant. They contain eight very large Peas, which are of the deep dull green colour of the Early Green Marrow. The ripe seed is white and olive mixed.

Sown February 19th; bloomed June 23rd; slatted July 2nd; and fit for use July 20th.

This is a valuable acquisition, and has evidently been raised from *Ne Plus Ultra*; but it is a much more robust grower and produces much larger pods. The plant continues growing, blooming, and podding till very late in the season, and when this is in the full vigour of growth, *Ne Plus Ultra* is ripening off. The Peas when cooked are of a fine, bright, green colour, and unlike those of any other variety.

THERMOMETRICAL OBSERVATIONS.

THE fatal consequences arising from last winter to plants previously considered hardy, and the discrepancy of those consequences, have aroused the gardener's attention to the importance of thermometrical observations. Seeking for an explanation of but one fact among those consequences justifies that aroused attention, and that fact is this: *Cupressus macrocarpa* was killed by last winter's frosts in the neighbourhood of Worcester, whilst it is quite uninjured on the brow of a chalk hill near Winchester. Why was this? What were the relative atmospheric and underground temperatures of the two places? What and when were the most violent transitions of temperature?

To these queries we can obtain no reply. No reliable thermometrical observations were made; yet it is obvious that truthful replies to those queries would afford information most important for the gardener to possess.

If such replies could have been obtained, we incline to believe it would have been found that, although the atmospheric temperatures on the Winchester hill were lower than those at Worcester, yet that the soil temperature never descended so low at Winchester as at Worcester. Such variations have many controlling causes, for, as observed by Dr. Thomson, the temperature is altered by an almost infinite number of circumstances; thus, altitude, latitude, longitude, horary and seasonal periods, the presence of aqueous meteors, winds, and the physical relations of the locality; even the aspect of the horizon, whether it is rugged or unbroken by lofty eminences, the chemical nature and colour of the soil, influence the result. Subject, however, to numerous fluctuations, we nevertheless observe that there are two stated periods of the day when the temperature reaches a maximum and minimum. The warmest period is generally from two to three hours after the sun has passed the meridian, the difference depending upon season; the coldest is nearly an hour before sunrise. A mean may be conveniently obtained by recording the oscillations of the thermometer at suitable intervals, and thus the toils of hourly observation dispensed with. Thus the sum of the indications at 6 A.M., 2 and 10 P.M., or, as suggested by Schouw, at 7 A.M., noon, and 10 P.M., divided by 3, will give a near approximation to the diurnal temperature. From observations made by Professor Dewey in North America, it would appear that the result obtained at the homonymous hours of 10 A.M. and 10 P.M. afforded an approximation of 5-100ths of a degree to the true mean diurnal temperature. Though the maximum temperature occurs some time after the sun has culminated, we find that proximity to coasts accelerates the epoch; and in tropical regions the sea-breeze still farther modifies the result. The same has been found on mountain tops; nor is it at all remarkable: for, let it be observed, that in the plain, not only is the atmosphere warmed by direct solar rays, but by those radiated from the ground; upon the mountain top there will be a greater absorption of caloric and less radiation, more heat being abstracted by conduction there than below, where the temperature of the earth is higher and more equally diffused. The temperature, then, upon those lofty spots will depend chiefly upon the sun's direct caloric action; and as those rays are most powerful which pierce the thinnest atmosphere—i.e., when the sun is on the meridian, the hottest period of the day will be at, or very soon after, culmination.—(*Elements of Meteorology*).

To obtain accurate comparative observations and records of

the maxima and minima temperatures daily, requires not only that the thermometers should be accurately and similarly graduated, but that they should be similarly exposed and similarly protected in every respect.

Mr. E. J. Lowe published some years since, in the "Gardener's Magazine of Botany," the following judicious directions upon this subject:—

"Thermometers for comparison should all be placed at a certain height from the ground: they should all face the north (except those which are required to register the maximum temperature in the sunshine, which should face the south); they should not be influenced by radiated heat, by currents, by reflected heat, such as is communicated from an opposite wall, by absorption of heat from the wall or woodwork to which the thermometer is attached; and, in short, they should be situated where there is a free passage of air.

"With regard to the height that a thermometer is placed above the ground, it is ascertained that an inch occasionally makes a difference of a few degrees. Thermometers placed at various heights do not vary much from each other in cloudy weather; but, with a cloudless sky the difference is very great: as an illustration we shall quote an example—viz., March 13th, 1845, 9h. 10m. p.m., a thermometer on the grass had fallen to 4.5°, 2 feet above the grass it stood 15°, and 7 feet above the grass at 18.5°. Here is a difference of 10½°, or three times as much between the temperature of the grass and 2 feet above it; and between the grass and 7 feet, of 14°, or four times as much.

"With respect to the aspect of thermometers, we shall give an instance which occurred at the same time as the last observation. A thermometer placed 14 feet above the ground, with a south-east aspect was 15°, with a north aspect 17°, with a north-east aspect 18°, and with a south-west aspect 19°.

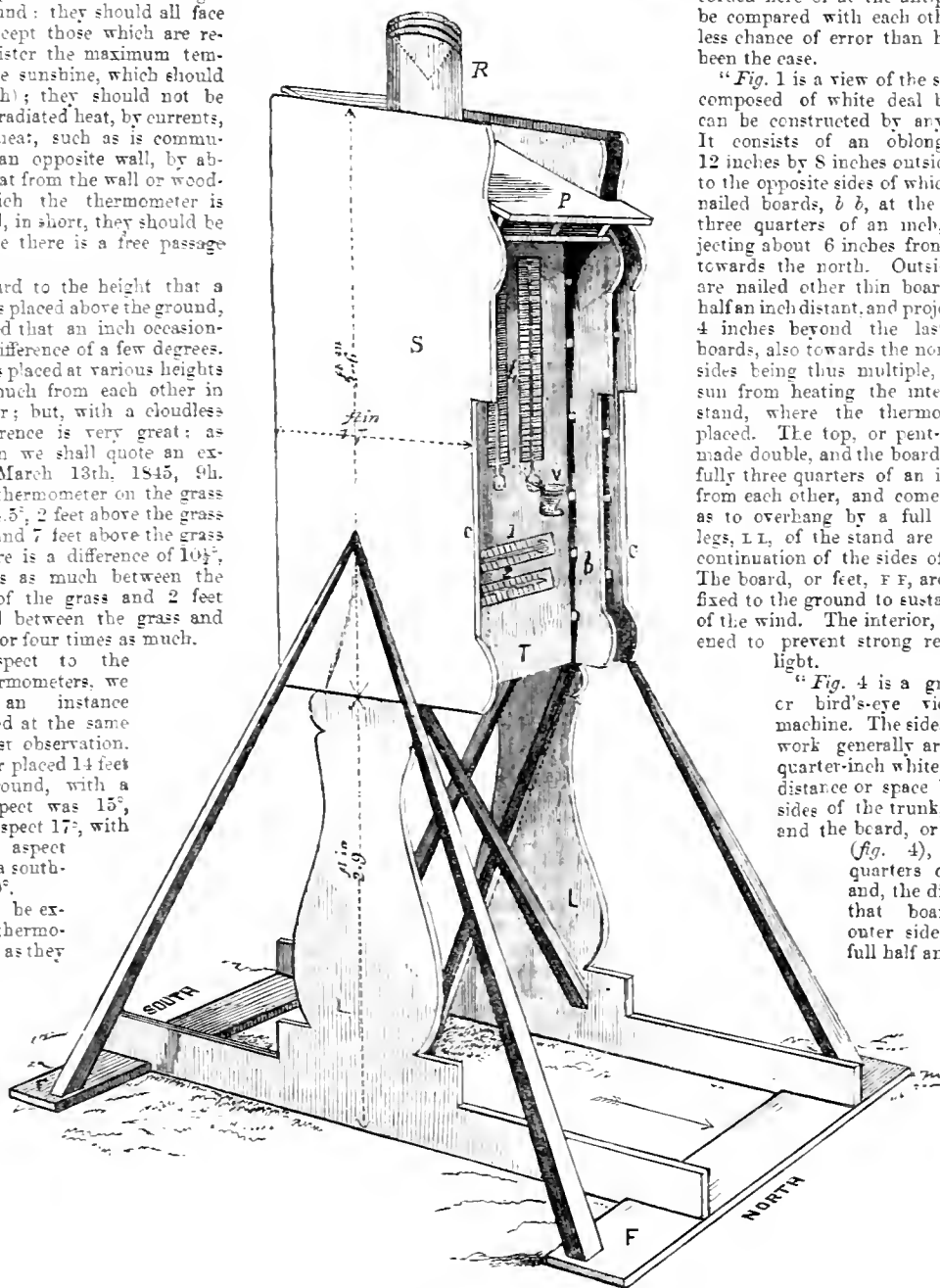
"It cannot be expected that thermometers, placed as they

we shall describe is so arranged that it may be placed in any eligible situation; it commands a true north and south aspect; the instruments can be read off with the greatest facility, and they will be at a known distance from the ground; the instruments on the south face will have the meridian sun, and those on the north face will be always in the shade. The instrument is not costly, and were this stand universally

adopted, observations, whether recorded here or at the antipodes, could be compared with each other with far less chance of error than has hitherto been the case.

"Fig. 1 is a view of the stand. It is composed of white deal boards, and can be constructed by any carpenter. It consists of an oblong trunk *T*, 12 inches by 8 inches outside measure, to the opposite sides of which trunk are nailed boards, *b b*, at the distance of three quarters of an inch, and projecting about 6 inches from the trunk towards the north. Outside of these are nailed other thin boards, *c c*, full half an inch distant, and projecting about 4 inches beyond the last-mentioned boards, also towards the north. These sides being thus multiple, prevent the sun from heating the interior of the stand, where the thermometers are placed. The top, or pent-board, *P*, is made double, and the boards are placed fully three quarters of an inch distant from each other, and come so forward as to overhang by a full inch. The legs, *L L*, of the stand are merely the continuation of the sides of the trunk. The board, or feet, *F F*, are loaded or fixed to the ground to sustain the force of the wind. The interior, *T*, is blackened to prevent strong reflections of light.

"Fig. 4 is a ground plan, or bird's-eye view of the machine. The sides and woodwork generally are of three-quarter-inch white deal. The distance or space between the sides of the trunk, *T* (fig. 1), and the board, or inner side (fig. 4), is three quarters of an inch; and, the distance from that board to the outer side (fig. 4), is full half an inch. The



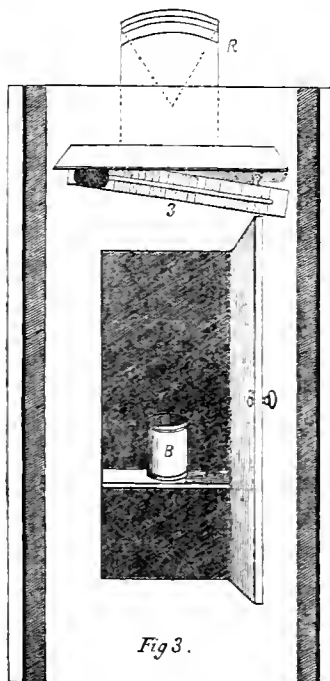
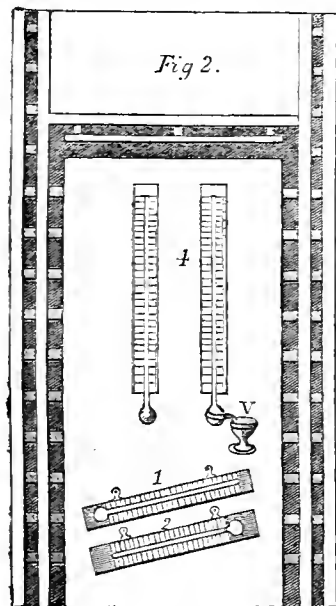
generally are, may be depended upon, some facing the north, others the south; some the north-east, others the north-west; some 3 feet to 5 feet above the ground, others 10 feet to 20 feet; some sheltered by a high wall, others by low palings; some touching a wall, others distant from it; and some in the angle of a high building (cool as a cellar), and others exposed to the rays of the sun at one or other hour during the day.

"The Lawson Meteorological Thermometer Stand,' which

narrow boards (fig. 4), are to be nailed, with studs intervening, to the middle board or side, and are for the purpose of preventing the sun from shining between the trunk and the sides of the stand, when near the meridian. The sides are fixed one upon another at the required distances (viz., three quarters of an inch and half an inch), by numerous wooden studs, partially shown at figs. 1 and 2, about three quarters of an inch diameter, and the screws passed through the sides and studs, fixing the whole

firmly together. The whole is to be painted white, except the trunk *r*, which should be black.

"Fig. 2 is the view of the north side of the stand. No. 1 is an index thermometer to give the greatest cold of the night. The thermometer inclines, the ball end being the lowest, in order that the index, by being assisted by gravity, will move more easily. No. 2 is an index thermometer to show the greatest heat of the day; for the same reason it is also placed on an



incline, the ball end being the highest. No. 4 are a pair of thermometers called the wet and dry ball thermometers, to show the power of the air to evaporate water. *v* is a vase or cistern of water for the wet ball thermometer; it is placed on the outside of the thermometer, to which a cotton wick is to be attached to connect it with the water, and at about the same elevation as the ball of the thermometer, in order that the evaporation from the vessel of water may not influence the thermometer on the other side, which is to be the dry ball thermometer; for, in some careful experiments which I made with a vessel placed beneath the balls, it was found that the dry ball was lowered from 0.2° to 0.3°, which, though apparently a small error, is a serious amount in the main difference between the readings of the dry and wet ball thermometers.

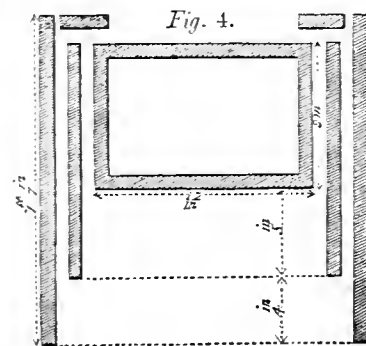
"Fig. 3 is the view of the south side of the stand. No. 3 is an index mercurial thermometer, with a black ball to give the greatest solar heat. *B* is a rain gauge on Glaisher's construction; and *R* is a measure into which rain is to be poured for measurement."

For ascertaining the temperature of the soil at various depths we recommend three tin tubes to be sunk in it in a place fully exposed to the sun, but far from a wall or other shelter; each tube to be about 2 inches in diameter, and of the respective depths of

2½ feet, 1½ foot, and 9 inches. These tubes should have in each a thermometer such as is represented at page 118 of our present volume, but with the shank lengthened so as to correspond with the depth of the tube in which it is placed. These tubes should be covered over by a hand-light glazed only on the top to exclude rain from entering the tubes, but entirely open at the sides to admit freely the admission of the air. The thermometers should be well packed into the tubes with cotton to exclude the atmospheric temperature.

The importance of ascertaining for a certainty that the soil is of a temperature correctly relative to that of the air above it is demonstrated by the fact, that naturally its average temperature is always higher than that of the air. In other words, the roots on the average are kept warmer than the branches.

From observations made at Chiswick during six years (1838—1847) Mr. Robert



Thompson gives the following epitome of results:—

"The hottest year as regards the temperature of the earth, 1846, afforded a mean temperature of 52° 32' at 1 foot deep; and 52° 55' at 2 feet deep. In the coldest year, 1845, the mean temperature at 1 foot deep was 48° 95'; and at 2 feet deep 49° 44'. The respective differences of the two thermometers in these hottest and coldest years were 3° 37' at 1 foot deep, and 3° 41' at 2 feet. The mean temperature of the air was 51° 45' in 1846, and 47° 92' in 1845; the difference being 3° 53'.

"On the average of the six years the earth is coldest in February, and warmest in July. The mean temperature of the air is also highest in July, but it is lowest in January. Throughout the months the gradations of temperature are not uniform. The monthly progression is as follows:—

"Temperature increases.

	Feb. Mar.	April.	May.	June.	July.
1 foot deep (Lowest)	5:10	5:01	7:32	7:65	5:35
2 feet deep (Lowest)	2:25	4:47	6:39	6:77	3:00
Air.....	0:22	4:39	5:20	7:04	8:04

"Temperature decreases.

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
1 foot deep	1:12	4:02	5:97	5:59	6:04	1:62	1:07
2 feet deep	0:42	2:91	5:30	5:65	5:20	1:05	1:45
Air.....	2:24	4:84	5:93	6:48	7:29	0:10	—

POMOLOGICAL CLEANINGS.

EARLY STRAWBERRIES IN THE NORTH.—In your JOURNAL OF HORTICULTURE, of June 4th, I observe with great interest an article on early Strawberries, from Ferdinand Gloede, Esq., of Sablons, France, "the king of Strawberry growers," stating that he had the May Queen ripe on the 18th of April; and I, living in the north of England, in the county of Durham, close to Yarm, Yorkshire, may be permitted to say that I had the May Queen ripe on the 4th of June. Had it not been for the terrible frosts of the 10th and 11th of May which killed the first blooms, I should have had it ripe about the middle or latter end

of May. The line is five years old and is covered with fruit. It is growing near a Privet hedge, and is sheltered a little from the north. Out of a stock of more than two hundred varieties I cannot find one that will be ripe for at least a week to come. The weather has been very bleak for the last week with cold east winds and rain.—WILLIAM JAS. NICHOLSON, *Egglescliffe, near Yarm, Yorkshire.*

CRYSTAL PALACE ROSE SHOW.—The schedule of prizes and the rules are now issued, and are very liberal. The classes embrace amateurs and growers for sale; Roses in pots, new

Roses, and cut flowers. Altogether £150 are given in prizes, being a larger amount than has ever before been offered for Roses only; and this year a greater facility is offered to exhibitors in the first four classes. One good truss of all good Roses is now substituted for the three trusses of former shows. Intending exhibitors must give notice to Mr. W. Houghton, Secretary to the Rose Show, on or before Saturday, the 29th of June, and receive from him the printed form in which the entries are made, so as to leave no room for mistakes or confusion on the morning of the Show; and to prevent a serious mistake which we noticed last year on the part of several exhibitors, all trusses must show their natural leaves growing on the stalk. Other Rose leaves, if they are stuck in under the flowers, will disqualify the exhibitor from taking a prize; and no exhibitor can take more than one prize in each class. The rules and the whole arrangements for the Great Rose Show appear to us sound, and in principle judicious in their application.

VEGETABLE PRODUCTS OF THE HIMALAYAS.

(Continued from page 142.)

THE Morenda Pine is, I believe, peculiar to the Himalayas, and grows in the middle and higher regions, from an elevation of 6000 feet to near the limits of forest. In the great Oak forests of the middle ranges it occurs at intervals, sometimes singly, sometimes in clusters, and its very dark foliage, and spire-like top towering above the other forest trees, render it a conspicuous object. On some of the hills nearer the snow, where Pine is the prevailing wood, it almost monopolises the forest. The Morenda is a large and very handsome tree, the trunk perfectly straight, often upwards of 20 feet in circumference at the base, and sometimes reaching a height of between 150 feet to 200 feet. The branches, which in a large tree commence about 20 feet from the ground, are very short, in some cases not extending more than a few feet from the trunk, and very regular all the way up, which adds to the apparent height of the tree. The wood is of little use except for in-door work, as, when exposed to the atmosphere, it soon decays.

The Rye is generally found growing with the Morenda; but is not nearly so plentiful, and never forms a forest of itself. Seldom, indeed, are a dozen trees seen together without some of the latter or the Cheel amongst them. It is in all respects a more tender tree, and entirely ceases upwards of 1000 feet lower down. In size it is nearly equal, and is, perhaps, still more ornamental. The branches are slender and drooping, and the foliage partakes of the same character. The wood is of much the same quality as that of the Morenda.

The Kolm, or common Pine, grows only on the lower hills, ceasing altogether at a little above 6000 feet. Forests of it extend over a great portion of the lower ranges, where it and common Oak are the principal trees. The Kolm forests are always very open, the trees some distance apart, and it is rarely or never any underwood grows beneath them. In many places Spear-grass alone covers the ground for miles where these trees form the forest. The Kolm has little ornamental about it. It is often a large irregular tree for a Pine, with wide-spreading and crooked branches growing far apart. The wood is a common coarse deal, only fit for in-door purposes, and, probably, would not repay the cost of cutting and transporting to the plains, even where the rivers are available; but as it yields excellent tar these forests may yet be turned to some advantage in a commercial point of view.

These are all the cone-bearing Pines in this part of the Himalayas. The Leuro is a kind of Cypress, the berries and leaves of which are similar to the long slender species in our English gardens and pleasure grounds, but here it grows into a tree nearly as large as the Morenda or Rye. It is very rare, and found only in a few places in the middle regions. The wood is hard and extremely heavy, but does not appear to be very durable. A peculiar quality, the very reverse of all Pine is, that it is very difficult to burn; so much so that it is impossible to make a good fire of it alone. Another Cypress, a much smaller tree, is found when we approach the dry atmosphere of Thibet, the wood of which has a fragrant smell and is often used to burn as incense. The Yew is scattered through all the forests between 7000 feet and 9000 feet; though itself often a tolerable sized tree, it is so overtopped by the gigantic Oaks and Pines as to have almost the character of underwood. Its wood is valued as much as Cedar, and supposed to be still more durable.

The first Oak met with is the Banj, which I have named

common, to distinguish it from the two others. It begins at about 3500 feet, and almost ceases at 8000. The Oak forests of the lower ranges are composed almost exclusively of this species, as well as the lower part of those further in the interior. There is nothing remarkable about the tree; it is in appearance some thing like the English Oak, but seldom attains to any extraordinary size. The wood is coarse and rarely used except for firewood. Burning well while green, it is the principal wood consumed in the houses at the different sanatariums. The three Himalayan Oaks are all evergreens.

The next in order is the Moura, a large and handsome tree. The branches are rather slender and very numerous, and the leaves small and of a particularly bright hue. It grows sparingly near the summits of the lower ranges amongst the common Oaks, becoming more common in the great forests of the interior, but is nowhere so numerous as to give a decided character to any part. It seems to prefer sheltered nooks and hollows, and a rich damp soil. Its range is from 5000 feet to nearly 9000 feet. It attains to a great size, the trunks of some being 20 feet in circumference. The wood is excellent, uniting in itself the best qualities of English Oak and Ash, the hardness and durability of the former with the toughness and flexibility of the latter. The leaves of both this and the common Oak are eaten with avidity by sheep and goats. In winter, when the grass is so dried up as to afford little nourishment, the shepherds ascend the trees, lopping off all the small branches, which as they fall are soon stripped of their leaves by the hungry flock underneath. Large bundles are also taken home regularly every evening for them to eat during the night. Of the two trees the Moura is considered the most nourishing, and in some districts each family has one or more trees planted near the village, which furnish a ready supply for a few days after severe snow, when it could not be otherwise obtained without a great deal more exposure to the inclement weather. These, being stripped of their small branches almost every year, grow so compact as a clipped Box tree, and, being, often of enormous size, are the most magnificent trees of the kind one can conceive.

The Khurso is an Oak confined to the higher hills. It is first met with at an elevation of about 7000 feet, and extends to nearly 11,000 feet. In the great Oak forests of the interior the lower portions consist of the two former, which gradually get mixed with Khurso, till this becomes the sole occupant of the higher. In appearance it somewhat resembles the common Oak, but has some peculiar characteristics. The leaves, particularly in young trees, are very prickly, as much so as Holly, and the acorns are about three times the size of those of the other Oaks. The trunk is generally very straight, and for 40 feet or 50 feet scarcely decreases at all in thickness. The branches are short, so that the trees grow very close together. An acre of ground in any Khurso forest would yield more than treble the quantity of timber the same area in any other Oak one would. The wood, though inferior to the Moura, is of a very fair quality. Though found on all faces, the Khurso prefers the southern and eastern slopes, as the Morenda and Rye Pines do the northern and western. It is not unusual to find the forest on one side of a ridge all Khurso, while on the other it is composed chiefly of the two Pines.

The Horse Chestnut grows to an immense size. It is generally found in groves of from fifty to a hundred trees, in the Oak and Morenda Pine forests of the interior, where the ground is rather damp and not very steep. These Chestnut groves, surrounded closely by the other forest trees, have rarely any growing amongst them, appropriating the entire space to their own species; and it is but seldom a Chestnut tree is found growing alone amongst other kinds. The Sycamore and Filbert grow scattered at random in similar localities in the higher forests. The former attains to a great size, and several majestic individuals are sometimes found growing by themselves in an open glade, or some grassy flat bordering a large stream, and giving quite a park-like appearance to the spot. The round knobby excrescences on the trunk of the Sycamore are cut out, and form a considerable article of export with Thibet, where they are made into drinking-cups something the shape of a teacup with a turned rim. They take a beautiful polish, and the wood is very pretty, being mottled something like Bird's-eye Maple. Roughly turned into something of the required shape, they sell in Thibet at from four to eight for a rupee; but one is occasionally found which itself fetches from ten to twenty rupees. These are called *jat ones*, but to a stranger they do not appear to differ in the slightest degree from the others. Even the men who collect them in the

forest can see no difference; and when they are so fortunate as to find one, which they know by the bark all falling off on giving it a slight tap, they keep it apart from the rest, or mark it in some particular manner, as the only means of knowing it again. The Tartars, they say, can distinguish them at once. The alleged reason of their great value is, on this side the hills, that any poisonous liquid poured into the cup is at once detected; what the real one may be it is impossible even to conjecture, and, their ideas being so much at variance with our own, perhaps no one but an inhabitant of the celestial empire could appreciate it. These jat cups are but rarely met with. A man may cut a thousand from the trees and not find one; but he always gives every knob the gentle tap by which they are discovered before commencing to cut it out. In Huc's "Travels through Tartary," he mentions going into a cup shop at Lhassa, and, on asking for a cup, being shown one of these jat ones, which was carefully taken out of several wrappers of silk paper, and being astounded at the price asked for it. I cannot remember whether he was told what there was peculiar in it or not, but it seems to show that the Tartars, at least, do see something.

Apricots grow only in the orchards, and most abundantly in the higher regions. The fruit is small and often very sour, the effect, probably, of the trees never being pruned; but some are of really tolerable flavour. Being cultivated merely for the oil, quantity, not quality, is what the Puharie looks for. When ripe the fruit is collected in large heaps, and covered with green grass and bushes till completely rotten, when the mass is taken in baskets to a spout or fall of water, which soon carries away the pulpy portion and leaves only the stones. These are put by to have the kernels extracted at convenience. So fond of spirituous liquor as they are in the higher hills, and regularly distilling it from grain, it is wonderful the Puharies have not discovered that a spirit might be obtained from the fruit, and thus the pulpy portion, now entirely wasted, made of use as well as the stones. When they take it to wash, it appears to be in a state of fermentation just ready for the still. The pounded cake, after the oil has been extracted, is kept for various purposes. It is considered a good thing to eat when crossing high passes where the air is very rarefied, and, when old, is an excellent remedy for certain urinary diseases. Though perfectly innoxious to the human system, it is a deadly poison to the canine race. A small quantity of the best and ripest fruit is dried in the sun, and some when partially dry is pounded and made into small cakes seasoned with salt and pepper. These cakes are also considered a good remedy or preventive for the sickness and headache invariably expected when crossing very high passes. The other fruit trees of these hills are Mangoes, Peaches, Nectarines, Pomegranates, Limes, Wild Cherries, Figs, Mulberries, Medlars, and a few others peculiar to the Himalayas. These and many other forest trees not described, being in no way remarkable, it would be uninteresting to notice them in detail.

Of the underwood, the only thing worthy of particular notice is the Ringall, a kind of hollow Bamboo cane, which grows throughout the middle regions. There are several varieties, differing but slightly in appearance, each having particular localities determined by elevation. All are used for basket-making, and the best, which grows in the great Oak and Morenda Pine forests of the interior, forms an article of export to the plains, where it is used to make hookah pipes. The cane is cut into pieces about 4 feet long, and carried in bundles to the marts at the foot of the hills. A man will carry 500 pieces, for which he gets from 2s. to 3s.—no very handsome remuneration for the trouble of cutting, drying, and carrying them five or six long days' march on his back. The Ringall, when most luxuriant, grows in clusters, the largest canes being from 3 inches to 6 inches in circumference, and from 20 feet to 30 feet long. When dead and perfectly dry they burn well, and are used for torchees where Pine wood is not procurable. The Ringall is well worth introducing into our English woods, where, the climate being very similar to that of its native region, it would doubtless be easily naturalised. It would not interfere with the forest trees, and would be of great value. Nothing can be better adapted to basket-making in all its branches; it makes handsome walking-canes, and can be used in the same manner as molacca-cane, for making mats, &c.

Above the forest, where the hills are high enough, comes a region of herbaceous vegetation, extending from about 12,000 feet to 14,000 feet, from whence the hills on the Indian side are clothed with perpetual snow. This region, from the first general fall of snow, which sometimes occurs as early as October, is

covered with it till May, and is not entirely free till near the end of June. In its short summer it is clothed with rich and luxuriant herbage, which springs up as soon as the snow disappears. The grass in a few weeks is in many places 2 feet or 3 feet high, and a great variety of flowering plants deck every slope with a thousand colours. The Cowslips particularly are very rich, of all colours, from the brightest yellow to a dark purple, and are much larger and finer flowers than any of the kind in an English garden. This region forms the summer pasture ground of the flocks possessed by the mountaineers; the shepherds being careful to avoid those places where the poisonous Aconite grows in profusion. On the Indian side of the great Himalayan chain there is little or no space between the limit of vegetation and that of perpetual snow; they join together without any appearance of that entirely barren strip of bare ground which on the Thibetian side divides the two. A great deal of controversy has arisen in trying to decide at what elevation to fix the limit of perpetual snow; but in truth no limit can be fixed, as it varies and is entirely determined by the climate. Where the hills are fully exposed to the influence of the rainy season, as is the case in the greater portion of Gurwhal, it is lowest, and may be fixed generally at 14,500 feet. Where the hills are less exposed to the rains, the climate becomes drier and the limit of perpetual snow higher, till, as in Thibet, entirely beyond their influence, and with a cold but remarkably dry climate, it is not less than 20,000 feet; corn growing at 14,000 feet, and the pasture grounds for cattle being often between 16,000 feet and 17,000 feet. If we search for immediate causes, the principal one may be that on the Indian side, the sun throughout the summer is generally obscured by clouds and has little influence; while on the Thibetian, a sky rarely obscured by even a passing cloud leaves the hills exposed to its full power. When speaking of the limit of snow, it must be borne in mind that this is always calculated on exposed hill-sides, as in ravines and sheltered places it remains all the year round much lower. In such situations beds of snow are often seen at the close of summer at 12,000 feet, and many of the large glaciers are not more than 11,000 feet.—(*A Summer Ramble in the Himalayas.*)

CULTURE OF SORGHUM,

AND THE MANUFACTURE OF SYRUP AND SUGAR THEREFROM.

HAVING watched with growing interest the experiments instituted both by myself and others on the Chinese Sugar-Cane; believing that soon, the North-West at least, will supply its own demand for syrup and sugar; and, knowing that the current year will witness a vast increase in the amount of ground planted with Sorghum; I feel justified in adding my mite to the general fund of information. When first introduced to this country the most extravagant anticipations were indulged in by the growers thereof. To read some of the accounts in the various Patent-office reports, one would be led to suppose that all that was necessary to be done in order to make sugar was to boil to a certain thickness (after clarification) and then empty into tubs or rats and the work was finished. In a day or so the mass would be crystallised. Sad experience has taught us better. But while we must moderate our anticipations somewhat, at any rate for the present, let us by no means become discouraged. The sugar is there! We must learn, and we are learning, to get it out. It is present in quantities amply sufficient to render the cultivation and manufacture of Sorghum profitable. The advice given below is founded on experiments carried on by myself, and when failure has occurred I shall faithfully state it, that the observer may take warning therefrom. With this lengthy premise I will give what I believe to be the best method of cultivating the cane.

First Selection of Soil.—This important point has been almost wholly overlooked. It has generally been supposed that the larger the stalk the greater the yield of saccharine matter, and, of course, the richest, deepest mould has been selected for its growth. This is a great mistake. I will illustrate by a little experiment of my own. Part of my cane grew on a southern slope of very moderate richness, and part on a bottom the very reverse in fertility. The stalks in the latter position were of much larger growth than those in the former, yet the first produced more syrup per acre of a superior quality. Besides, I found no difficulty in procuring its granulation, while the latter would not crystallise. The soil of the slope was a reddish-brown, slightly intermixed with sand. The cane brought to my mill

from the borders of the prairie and from timber land invariably excelled in quality that grown in the deep, rich soil of the centre of the prairie. I will enter into no learned disquisition on the chemical properties of the said soils. I am writing for the intelligent farmer, not for chemists. Plain, simple facts, couched in plain, simple language, are what we need.

It is unnecessary, one would suppose, to remark that the ground should be put in perfect tilth to receive the seed, had not ocular demonstration afforded abundant proof to the contrary. The plant when young is quite feeble in growth, and amply repays any extra care exercised in preparation for planting. As regards manure, the present richness of the soil should be the guide taken in connection with the facts stated above concerning the overgrowth of stalk.

Time of Planting.—The experience of the past year has proved that the seed can safely be sown a week or ten days earlier than corn; and as the manufacturing season is so short, every day we can add to it is precious. Some planted by a neighbour on the 25th of March was the best cane in the prairie. A mild frost seems to inflict no injury. My own was planted on the 16th of April, and was ready to work up by the 21st of August. (I am writing from Montgomery county, near the centre of the State.) The seed, being slow to germinate, should be sprouted before sowing, in the same manner as corn. A week can be gained thus. As there is a period embracing from four to six days, in which the cane is in a greater degree of perfection for manufacturing, I would strongly urge sowing in such succession as will insure its being worked up during that period. The cultivator will, of course, take into consideration his facilities for working up, in regulating their succession. I regard this as one of the most important points in the whole business. The syrup made at such period, will, if properly managed, be of a beautiful transparent colour, entirely free from any foreign taste or smell; besides, this is the only time that crystals can be produced with any certainty. I have no doubt that the occasionally-successful attempts at granulation which have occurred from year to year have resulted from accidental manufacture within this period. I refer, of course, to experiments in the hands of farmers, not of chemists, who can make sugar from a worn-out hickory shirt. This period commences when the seed is fully in the "dough," and lasts until it is nearly, not quite, ripe. If this statement conflicts with the commonly received opinion, all I can say is, Try it! Such is my experience. When the first frost comes, all this cane which remains should be cut and carefully protected from the weather, by being placed under a shed, or covered over with straw, so that neither the sun nor wind can act upon it. By covering so as to prevent freezing, good second-rate syrup (but not sugar) can be made until the 1st of December, and thus lengthen the manufacturing season a whole month. It will not do to carelessly throw the stalks in a pile in the open air, as has been too commonly practised heretofore. When I first commenced the business I was told that I could cord it up around the yard, and it would keep good for a month or six weeks. It is a grave error; most have doubtless found it so by this time.

Manner of Planting.—The seed should be sown in drills 3 feet apart, and seed enough sown in the drills to insure one plant every 12 inches. Thinner than this I regard not only as a waste of land, but as rendering the stalks liable to too great a growth, which I have before stated to be an injury. Shallow sowing (from 1 inch to 1½ inch) insures speedy germination more certainly. Cultivate carefully with the hoe and cultivator. I saw an article which stated that breaking the roots with a deep ploughing just as the seed commenced to turn greatly increases the amount of saccharine matter. I have not tried it.

Stripping and Topping.—The cane should be stripped at least one week before using. This course certainly does enrich the cane, and also renders it easy to save the blades for fodder, which should be bound and shocked between the rows. The stripping can be performed either with the two hands encased in buckskin gloves or by means of a wooden knife about five feet long as recommended by Mr. Cook. Our experience led us to prefer the hands, as we could strip a stalk, and sometimes two or three, at a single stroke, and retain the leaves ready to bind, saving thereby considerable labour.

The cane should not be topped until ready for cutting. If this is performed sooner the formation of sugar is immediately checked, by the efforts of the cane to replace the lost heads or panicles. Some which I topped at the time of stripping (ten days before cutting) yielded juice which contained only 12 per

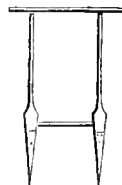
cent. syrup, while that from cane untopped until the day of using yielded 18 and 20 per cent. Neither would the latter granulate. It can best be topped by hauling to the mill, and, laying the heads evenly, cut them off with a hatchet.

Time of Cutting.—Do not cut until the very day of using, if it can possibly be avoided. From the day it is cut it commences to deteriorate. This is a fixed fact. A change in the chemical constituents immediately begins, which soon destroys the granulating power, and, if the weather happens to be warm, brings on acetous fermentation. This many have learned to their cost.

Most Favourable Period for Manufacture.—This commences, as I have before stated, when the seed is fully in the "dough," and continues until it is nearly ripe. The past season has afforded abundant proof that this is the fact. Cane having been planted quite early (compared with former years) most of it in this region was fully ripe a month before frost; and as the facilities for manufacturing were very few, a large quantity necessarily stood in the field uncut until wanted at the mill. An acid, seemingly identical with tartaric acid, commenced forming as soon as it became thoroughly ripe, which requires the use of neutralising agents, thereby injuring both colour and taste. That made in the above-mentioned period required nothing of the sort.

If, however, the manufacture is so delayed by breakage of machinery or any other cause, that the cane sours after being cut, the acidity can be thoroughly neutralised by using sufficient alkali. The sourer the juice the more alkali. The colour is injured thereby, but that is comparatively a matter of small moment. I found that in some very acid juice a tablespoonful of strong soda was required for a gallon of syrup. For a few days there was a decided smell of the alkali, but it presently passed away and the syrup proved to be quite a good article, and a portion of it has grained in the barrel.

(To be continued.)



DIBBLES.—We annex a drawing of a dibble much used in France. It makes two holes at the same time, and prevents the necessity of stretching the garden-line so often when planting in rows; the line need only be changed at every second row.

VARIETIES.

JAPANESE GARDENING.—We have recently had an opportunity of comparing the horticulture of Japan with that of this country. A gentleman residing in Yeddo—the London of the eastern world—has sent home some of the best specimens he could procure of the much-prized plants used in the decoration of the dwellings of the higher classes of Japanese society. We find the principle upon which the horticulturist of that country works as different as possible to that which actuates the British gardener—as widely do they differ from each other as the islands in which they originated. The great aim of the Japanese gardener is to make a little, dwarfed, and stunted tree look as old, as gnarled, and twisted as possible; he strives to make the plant of a foot or two in height rival in this respect the monarch of the forest, whose moss-covered stem has braved the storms of a hundred winters, but which has, nevertheless, suffered from the effects of a thousand accidents. In one case, a little Coniferous tree—some species of *Pinus* which, in this condition, it is impossible to identify—has had its roots crammed into a little porcelain flower-pot; its stem has then been bent backwards and forwards in a zig-zag way, and tied in a hundred places with narrow strips of bark (the produce probably of some kind of *Daphne*). The Japanese are very skilful in the art of grafting, as is shown by several of these plants. In one example an old *Podocarpus* stem has been cut off horizontally, and three or four scions of an oval-leaved species introduced; as these shoots grew, they were trained downwards, for the double purpose of hiding the stem, and at the same time checking the luxuriance of the plant. The dark green glossy leaves of this specimen are on several of the shoots striped with white.

AMERICAN MISTLETOE.—This is a parasitic plant which grows on hard-wood trees that have rough bark, in some sections of the country, particularly in the lower part of the valley of the Ohio, and along the Mississippi. The Oak and Elm seem to furnish the best support to it. Its leaves remain green through the winter, which gives a striking effect in contrast with the bare branches of the trees on which it grows; but it seems to injure the trees. We have noticed that the branches of those on which the parasite has been growing for the longest time, and in the greatest abundance, have become gnarled, and apparently unthrifty; their decay, in some instances, being hastened from this cause. The *Ohio Cultivator*, in reply to a correspondent who asks if the Mistletoe would not improve the appearance of certain trees in winter, says—"The seeds are deposited by birds upon the trees where they alight, growing in form and size much like a corn basket inverted, with a single short stem like that of a toadstool, only that it is of firm wood. If the seeds could be obtained from far-enough south to insure germination, we suppose they could be sprouted in a manurial preparation, and set to grow upon the rough bark of trees in damp situations. To our eye, the American Mistletoe has no more picturesque beauty than a big squirrel's nest in a tree top." This plant is of a different species from the European Mistletoe, and we quite agree with our contemporary that it adds no beauty to the trees on which it grows.—(*Boston Cultivator*.)

[Can any of our readers inform us what is the botanical name of this parasite?—EDS.]

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE planting out of Broccoli, Winter Greens, Kales, Cauliflowers, and Cabbages, to be carried on at every favourable opportunity, so that every vacant place may be soon filled up. *Asparagus*, now is a good time to apply salt to the beds, about 1 lb. to a square yard. Stimulants applied now will enable the roots to lay up a good store of organised matter for another season; and, therefore, in addition to salt, occasional applications of liquid manure to be given, the beneficial effects of which will be perceptible in the autumn and more especially in the spring, by increasing the size and productiveness. *Beans (Broad)*, make another sowing, but previously to doing so soak the seed in water and water the drills. Pinch off the tops of those that are forming their pods. *Celery*, the trenches for the main crops to be prepared; if the trenches are made between the rows of Peas, the shade from the Peas will be beneficial to it in its early stage, and the Peas will be done bearing and can be removed by the time they are likely to be injurious. *Dwarf Kidney Beans*, make a good sowing for the autumn, and water the drills previously to planting them. *Peas*, sow some of the quick-bearing sorts for autumn use; steep the seed and water the drills as advised for Beans. Continue to stick the advancing crops. *Radishes*, make a sowing for succession; if the ground is dry water it immediately after sowing, and shade it by mats or other means to prevent evaporation. *Scarlet Runners*, a sowing may yet be made to come in late in the autumn. Stick the advancing crops. *Tomatoes*, keep them well thinned out and nailed to the wall or fence. *Turnips*, if the weather is dry it will be necessary to water the late sowings, and every time after doing so to sprinkle them with any kind of dust to prevent the ravages of the fly.

FLOWER GARDEN.

Attend to tying up herbaceous plants that are tall or showing flower, such as the Rockets, Pæonies, Delphiniums, Lychnis, &c., in order to prevent them from being injured by the wind. Propagate choice Roses, Pinks, Pansies, and Double Rockets; and mow grass lawns often during this growing weather. An acquaintance with the different species of bulbs will direct the cultivator how he should treat them, some species, for instance, form new bulbs by the side of the old ones, and in course of time become crowded and weak and cease to bloom. Others form the new bulbs under the old ones, and at last get so deep as to produce similar effects. Others again form their new bulbs over the old ones, and become elevated above the surface of the ground and are destroyed by the hoe or the frost. All those that require taking up, such as Ranunculuses, Hyacinths, Tulips, &c., should be taken up and housed till autumn.

FRUIT GARDEN.

Strawberries will require liberal applications of water if the

ground is dry. Thin out the young shoots of Raspberries. Pinch out the tops of the young shoots of Figs. The young wood of wall trees to be frequently nailed in. Remove all suckers from Filberts as they appear, examine the young fruit and look after caterpillars as they are making sad havoc in some places.

STOVE.

Besides the daily routine of watering, shading, giving air, and an occasional shift to some more promising specimen, there is little else to be remarked on just now. The climbing plants to be attended to, see that they are properly trained either to stakes or trellises, some of them may require stopping to throw out more shoots. The beauty of these plants depends in a great measure upon the training they receive during the season in which rapid growth is going on. Regulate Orchids so that those requiring most humidity or air may occupy those positions most suitable to them. Avoid watering those that are not in active growth. Some of the free-growing kinds will be benefited by increased pot room, and those on blocks of wood and in wire baskets may have a little additional moss placed over the roots. When vigorous growth is going on never allow the young and succulent roots to perish for want of moisture.

GREENHOUSE AND CONSERVATORY.

Keep the greenhouse plants moist by frequent syringings, turn the plants round from time to time that they may not get one-sided and allow them to have plenty of room on all sides. A lot of the best Scarlet Geraniums to be selected for blooming next winter. These to be grown rapidly and to be frequently stopped, towards autumn they will become rather pot-bound, they must not, however, be shifted, but merely hardened in a very exposed situation until the end of September, in order to get them sturdy and short-jointed; by such means they will become objects of great interest all the ensuing winter. Cut down Pelargoniums after blooming and put in the shoots for cuttings. By pinching off the blossom-buds of the young Pelargoniums a late bloom can be secured. The Perpetual and Bourbon Roses which have been forced, place in a cool situation for the purpose of repressing further activity. After a season of rest the soil to be shaken from them and all decayed roots removed, after which they should be potted in fresh soil, removed to the protection of a cold pit and there plunged. W. KEANE.

DOINGS OF THE LAST WEEK.

"LONG-LOOKED-FOR come at last." The frequent drizzles of rain that refreshed the foliage, but did little more than lay the dust, came down in more earnest on the 8th, and on Sunday night and Monday morning so copiously as to refresh the earth, giving good hopes for a hay crop, and just the very thing for all fresh-planted flowers and vegetables in the garden. So gently, too, did the rain fall, that there was plenty of time for one shower thoroughly to soak in before another came. We were from home a few hours on Monday morning, and we never recollect seeing a stronger confirmation of the importance of shading or of sprinkling the foliage in sudden extremes from dull weather to sunshine. The sun shone out for a short time after breakfast on Monday; and though the plants were quite damp enough at the roots, yet almost everything in the houses began to flag more or less. Notwithstanding the fine rains of the night saturating the roots of Cabbages and Cauliflowers, even the large leaves of these common vegetables began to hang their heads and droop as if greatly distressed. Even the extra waterings from the heavens could not secure them from feeling the effects of such a sudden transition from a week of dull weather to a few hours of not very bright sunshine. When the sun again was clouded the plants quickly recovered, and would be able to stand a second bright sunshine when it came. More watering at the roots in such a case would have been worse than labour lost. But for a syringing, or a little shade, many a tender leaf might have been scorched up or shrivelled.

The rain was just the thing for the winter Greens turned out, and a great temptation to turn out everything for which room could be had. We find from a small kitchen garden, which to keep things square must be pretty well always full, that we shall not have room for half we want until early Potatoes and Peas are removed; and in order that the plants may not be drawn and yet be growing, it is a good plan to dig a bit of ground shallowly, mix rotten leaf mould or decayed dung for

2 inches or 3 inches on the surface, and then prick out the plants 3 inches or 4 inches apart. Here they will make nice, sturdy plants, and, if desirable, will lift with a ball when their future home is made ready for them. Mowed down the winter Spinach, intending to dig it down and plant the space with early Coleworts, and Cabbages, giving them about a foot from each other. Finished thinning Carrots, Parsnips, Onions, and the earliest Beets. Sowed the last of the Marrowfat Peas for the season, as the Ne Plus Ultra, Jeye's Conqueror, Veitch's Perfection, Harrison's Perfection, &c., and staked up all the previous sowings that were high enough. The old nurserymen used to tell gardeners "to sow thick and thin quick," but if seed is good, nothing more surely defeats its purpose than sowing large-growing Peas thickly; but this season the advice even as respects them would have been suitable, for never did Peas come up weaker (of the better sorts) and so few of them too. I have reason to be glad that a few home-saved seeds, though anything but a good sample, came up well and vigorous, whilst some kinds that came from the most respectable seedsmen, and fine samples too, rotted in the ground. Much of the seed I fear was too old, though most likely thoroughly unknown to the tradesmen. Great complaints have been made of *Scarlet Runners*, and we find that in our own case, the seed rotted in the ground considerably, though covered not more than an inch. One of our neighbours had a fine lot of seed two years old, and even that came thick as could be, and he had the satisfaction of helping others not so well off.

Great complaints have also been made of bad seed in *Dwarf Kidney Beans*; but here they never came up more regularly and better, though I never knew them lie so long in the ground before moving; and I have no doubt that some of the failures were owing to early sowing, placing the seed rather deep, and the extra cold, wet condition of the earth until of late. Will sow directly the last lot for the season out of doors. Have turned out under the protection of calico and glass merely, a nice lot just beginning to swell, others showing bloom, and another succession to them to come in before the first crop out of doors, and when the first of these protected crops are fit to gather, will clear out the remainder from pits, &c., that have borne well all the season, and would continue till the end of it, if we could spare them the space. Sowed also Spinach, Turnips, Radishes, Lettuces, Cauliflowers, Onions, &c., for succession.

Having been rather disappointed last season in ridge Cucumbers and Vegetable Marrows, turned out strong plants in a bed formed with mowings of grass, long dung, half decomposed dung, &c., all well mixed together, and put up for fully a yard in height so as to yield a gentle continuous bottom heat, putting over that 1 foot of rotten leaves, and then 1 foot of soil, and turning out strong plants at once and laying them down, putting a hand-light over the collars of the plants in some cases, and a spare sash in others, and a rail back and front until they are growing freely. In fine seasons such care is not necessary; but the last cold autumn should give us a note of caution. Put some dung together and a few droppings on the top, for a *Mushroom-bed* in an open thatched shed, similar to what we did a few weeks ago, as such a place is more suitable in summer than any Mushroom-house, unless it be sunk beneath the ground level, or be in a cellar or something of that kind. This enables us to clear out the Mushroom-house; and thus to a great extent, by means of washing with hot water and smoking with sulphur, to get rid of all sowbugs and other insects before commencing again in autumn. Those interested in rough Mushroom-beds may look back for the Number in which I spoke of making a bed with stubble, long dung, and a few droppings on the top. I was rather surprised it cooled down so nicely and so gently, and enabled us to spawn it so soon. After spawning, a little horse-droppings and a few sheep-droppings—say 1½ inch in all, were spread on the surface and beat down; and as this just made a very gentle heat, after a couple of days or so, the soil, 2 inches or a little more was put on well kneaded, watered, and smoothed on the surface. All still kept right, and as the trial stick showed rather less than more heat than was necessary, a slight covering of hay was thrown over it. This seemed just to make all right, but in four or five days after a close, muggy night, the bed got excessively hot, and all covering was at once removed, when it soon cooled. Since then it has taken upon itself to heat suddenly and cool suddenly three or four times, which is rather uncommon for these beds, and I can account for it on no other consideration than the dressing of the sheep-dung on the surface being rather thick, and, perhaps, the bottom of the bed being so loose as, independently of our close covering of the top, the air might

gain entrance and ever and anon produce fresh fermentation.

We have examined the bed, and on the whole find the spawn working pretty well and promising a fair crop, but after a few hours more continuance of the same heat, which we found it attain in less than twenty-four hours, and we would have not given a farthing for the produce of the bed. Even after spawning and earthing, Mushroom-beds require watching, and this is the lesson the above circumstance is designed to teach. We have no doubt that more failures arise from heats than colds. If the bed is rather cold, a covering on the surface will retain heat into it, and, when the spawn is working, that will make heat of itself. The bottom heat for a Mushroom-bed should average about 80°, seldom above it. The atmospheric heat should average 55°. When close, firm Mushrooms are desirable, a few degrees less are better than a few more; in no case should it exceed 60°. Those who take notes, will find the Mushroom does best out of doors in the fields, when the temperature approaches these conditions. In autumn the soil is warm, and the night air is cool.

After trying many plans in summer, such as inserting the spawn in beds of Cucumbers, Vegetable Marrows, &c., I have come to the conclusion that, next to a place under ground, a shady shed, or an open space under the thick shade of trees, and yet where means can be taken to throw off the rains, and heavy drops that come from them, is best at that time for securing Mushrooms in good fleshy condition. The shed I have I thatched with straw on purpose, the wall is at the back, and the front is open or partly shut with thin strawed hurdles. Without a shed I would use small ridges in summer, say dung well prepared, 2½ feet wide at base, and 2 feet to the ridge, spawned on each side, covered with 2 inches of soil and a slight sprinkling of hay, kept a little moist in hot dry weather. A foot or two above this, we should like a waterproofed covering of some kind of boards or of canvas, painted outside white. The covering is another security against heat and the falls of heavy rains, and yet the air circulates freely under all. In close Mushroom-houses in summer, the maggotty and thin appearance of the Mushrooms is owing to excessive heat, the want of air, or the giving that air in rushing currents. At such times they seem to dislike draughts as much as the tenderest-reared lady.—R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

DISEASED PEACHES (*A Young Gardener*).—Your cracked, dry-gongrened Peach intimates that there is a deficient supply of sap to the tree which bore it; and as there are many on the same tree similarly attacked, it is evident that there is something wrong at the roots. These have descended into an ungenial soil, or the soil of the border in the house in which they grow is too poor or too dry. In the latter case liquid manure and mulching would be the best applications.

CHECKING CINTEROUS PLANTS (*B. W.*).—This, effected by lifting them annually in autumn, will not prejudice their future growth if not continued above four or five years. Six feet high is sufficient for the wire-netting used for confining poultry, provided you do not put a bar of any kind along the top of it, poultry seeing the bar would try to fly up to roost upon it. You cannot keep young standard Apple and other fruit trees within dwarf bounds, by pinching and stopping them.

INDEFINITE QUESTION (*A Young Beginner*).—Your question is too wide and indefinite for us to answer you. "What fruit and flowers, plants and creepers would grow at Tipton, in Lancashire?" And what is "Cadluck?" But all grasses and weeds, with no seed on them, are good manure.

VARIORS (*G. S. A.*).—The *Phlox verna* should be staked directly; but to get fine plants in pots we would lift and repot the older plants, and keep them in a shady place for a time. They will flower very early in spring, if merely kept under glass. Shift the *Cypripedium spectabile* as it begins to grow, give a little cowdung and sandy loam to the peat, and weak manure water as long as it keeps growing. We would not shake all the soil from the roots of *Cerasus japonicus* nor *Deutzia gracilis*, but rather keep all that will adhere to them; and, for such a purpose, we would prefer potting in October to potting at Christmas. At the latter time we should expect many of the buds of *Cerasus*, and *Deutzia* too, to drop, even if the soil was not shaken away as you propose.

SEEDLING AQUILEGIAS OR COLUMBINES (*Mr. Ransom*).—Your Aquilegias are the finest we have yet seen in that family; two of them partake of the colour of Skinneri with a mixture of yellow; another pair look as if glandulosa or alpine blood was in them, with the white turned to a beautiful primrose tint. There are two shades of purple, edged with yellow, and there is a double deep yellow with light purple spurs, and a light single yellow with lilac spurs; all are large, and the deeper red one after Skinneri with the

bright yellow edges, is the richest in combination of colour. They are most beautiful border flowers certainly.

HEATING SMALL GREENHOUSE (A. F.).—The "slow combustion" apparatus you speak of is very efficient, but for so small a place we should use an Arnott's stove. Dees live through the winter in wooden hives in Scotland, very much further north than you reside. At the same time, there is no doubt that straw hives are warmer than wooden hives.

NAMES OF PLANTS (J. H. Wilson).—1, *Manettia glabra*; 4, *Cattleya Harrisoniae*; 8, *Elæia hyacinthina*; 9, *Pothos violacea*. The rest are obscure weedy Orchids unknown to us. (*E. D., Chester*).—*Petasites vulgaris*. It flowers in spring before the leaves appear, and is very fragrant. (*R. Phipps*).—1, *Bunium flexuosum*; 2, *Veronica Baccabunga*; 3, *Veronica polia*; 4, *Cherophyllum sylvestre*. (*W. H. Cooke*).—1, *Lychnis diurna*; 2, *Veronica officinalis*; 3, *Allium ursinum*. (*M. F.*).—*Duranta Ellisia variegata*, a stoveshrub as far as can be judged from leaves only. (*J. Fair*).—It is some Caryophyllaceous plant certainly, and apparently some species of *Silene* or *Dianthus*, and, therefore, an accidental weed if *Fera* seed was really sown. No doubt it is an outdoor plant. (*G. S. A.*).—1, *Anthericum lilastrium*; 2, *Ceanothus buxifolia*; 3, *Thalictrum aquilegifolium*.

FLOWER SHOWS FOR 1861.

JUNE 19th and 20th. BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. Sec., E. Carpenter.

JUNE 25th. ROMFORD. (Plants, Flowers, and Fruit.) Sec., A. Cooper, Romford.

JULY 3rd. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.

JULY 6th. CRYSTAL PALACE. (Rose Show.) Sec., W. Houghton.

JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) *Garden Superintendent*, G. Eyles.

JULY 18th. TOWCESTER FLORAL AND HORTICULTURAL SOCIETY. Sec., T. B. Rodhouse, Towcester.

JULY 18th. PRESCOT. Sec., J. Beesley.

AUGUST 9th. BELFAST ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Cartwright.

AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.

SEPTEMBER 2nd. HECKMONDWIKE. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmondwike.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STOKES NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

JUNE 19th. THORNE. Sec., Mr. Joseph Richardson. Entries close June 12th.

JUNE 19th, 20th, and 21st. COALBROOKDALE. Secs., Messrs J. B. Chune, and Henry Boycroft, Coalbrookdale.

JUNE 25th. ESSEX. Sec., Mr. W. R. Emson, Slough House, Ilalstead, Essex.

JUNE 28th. DRIFFIELD. Sec., Mr. R. Davison. Entries close June 22nd.

JUNE 28th and 29th. TAUNTON. Sec., Mr. Charles Baillance. Entries close June 17th.

JULY 3rd, 4th, and 5th. BLACKPOOL and WEST LANCASHIRE. Sec., Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.

JULY 18th. PRESCOT. Sec., Mr. J. Beesley.

AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. Sec., Mr. W. Houghton.

SEPTEMBER 3rd. POCKLINGTON (Yorkshire.) Sec., Mr. Thomas Grant. Entries close August 26th.

SEPTEMBER 24th. BRIDGORTH. Sec., R. Taylor, Bridgorth.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.

DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., Mr. W. Houghton.

N.B.—Secretaries will oblige us by sending early copies of their lists.

BIRMINGHAM POULTRY PRIZE LIST FOR 1861.

Time certainly goes faster than it used to do. It was only the other day, we, in common with many friends, were in Bingley Hall, rejoicing and wondering somewhat at the crowds of distinguished company that testified by their presence, and by their contempt of unfavourable weather, the undiminished interest they feel in our favourite pursuit; and now the prize list for December, 1861, is put into our hands, we plead guilty to a desire to speak well of the Birmingham and Midland Counties Show. It has a great claim on the sympathy of every one: it is successful, and it can point to years of past glory as the earnest of what it will do again, and as the assurance that everything contained in that long red-lettered prize list will be properly carried out. The Dorkings make eight classes, and here Mr.

Martin Billing liberally offers a piece of plate, value five guineas, for the best pen in any class. Mr. Henry Wade for adult Cochins; Mr. James Cattell for chickens; and Mr. Greensill for Game, follow the good example.

There are ninety-five tempting classes with prizes as thick as "leaves in Vallembrasa," courting the best attention of amateurs. There is a class for Pheasants, one for Ornamental Water Fowl, and one for young Geese. These are great improvements, and they are in keeping with the progress of our times. A quaker-like devotion to staid colours seems to have been on the wane ever since the decoration of the Crystal Palace in 1851, by Owen Jones. People took a liking to colour; and just as mauves, cerises, and magentas have displaced the doves, drabs, browns, and slates in our ladies' dresses, so utility is sought in poultry, combined, if possible, with beauty of plumage. Ornamental Ducks and Pheasants will discourse eloquently on this subject by their presence; and there was a time when the Turkey, Guinea Fowl, and Pheasant were as much novelties as many a bird will be at Bingley Hall.

The Pigeon classes have been strengthened, and they needed it much. A first prize of £3 has been added to each. This will, we hope, increase the entries of these beautiful birds.

The greatest change of all remains to be noticed. It has often been a difficulty, and in many instances an insurmountable one, to get three perfect hens for a pen; those who have not tried have little idea of the task, because ordinary fowls are not at home at Bingley Hall, and many have thought to demand three hens or pullets was to restrict the Show to the large yards. In this as in every other point where the public taste should be consulted, the Committee and Council of the Birmingham Show meet the wishes of their friends, and it is announced that at the next Exhibition each pen will be composed of two instead of three hens or pullets. This is a great boon, and we trust it will be appreciated by every amateur in the United Kingdom.

The period that must elapse between this notice and the Show itself, will allow us time and space for more than one recurrence to it; but our feeling in favour of our first poultry love is so strong, and the claims its managers have on the public are so well founded, we never delay after receipt of the prize list to bring it before the public, to raise our voice in its favour, and to bespeak all the support it deserves so well.

EGGS UNPRODUCTIVE.

IN February of this year I brought a Brahma cock and three hens, which are first-class birds. I have had six sittings at different periods, the last of which was due this day; the whole batch have proved rotten. Can you point out the cause?—A SUBSCRIBER.

[It is almost impossible to tell you what may be the cause of your failure, and we were never more disposed to collect and publish the curiosities of poultry than we are now. We have in our time, met with unaccountable vagaries in other animals. An excellent friend of ours breeds horses largely; till within the last three years, there had not been a colt bred on the farm for half a century—all were fillies. We bred the Silver Grey Rabbits; among many does there is one that always has one or more Himalayan young in the litter. This has happened four times; previous to that, during two years she never had any. On speaking of this to other breeders we find the same thing has happened to them. We will now speak of our Cochins experience of this year: Our early stock was about fifty hens and twelve cocks, they were divided into several walks of one cock and four hens; but as all were considered equally good, they were shifted at times. Our first eggs came off in the early part of January—five chickens out of eighteen eggs; we were very dissatisfied, we made some alterations and tried again—worse result—none hatched at all. We bought fresh cocks, we altered the pens, in some we increased, in others we decreased the proportion of hens to cocks, still the same result; in fact, we have tried everything we know, and the average of our Cochins eggs has not been one chicken in ten eggs. At the same yard are four other breeds, all of which have hatched wonderfully well, far better than usual, whole sittings came off day after day. We are not discouraged, we intend to sit our hens again in July, and we advise you to do the same. Having tried every plan, scheme, and change that we know of without success, we have only to tell you that naked and unsatisfactory truth, and to lament you should be as badly off as ourselves.]

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 209.)

12.—THE COMMON OR HOUSE SPARROW (*Fringilla domestica*.)

French, Le Moineau. German, Der Hous Sperling, or Spatz.

THE common or House Sparrow is a bird so common and generally spread over Europe, that it is at least known to every one; yet its habits have been but partially investigated.

On a closer examination the plumage of the male will be found much prettier than is generally thought. The head is dark, the top being as if powdered with grey; a reddish-brown mark behind the eyes; the cheeks ash-grey; a spot beneath the bill, black; and a larger spot on the front of the neck, in which the feathers are black with grey edges; but as spring advances these grey borders are much worn off, and the black bib appears larger; the back of the neck dark grey; the back reddish-brown with longitudinal black spots; the wing covert-feathers are reddish-brown, one row having white edges that form a white bar on the wing; the quill-feathers of wings and tail are dark dull brown; the under parts of the body greyish-white.

The female is much less diversified in colour, the upper parts being of a dull greyish-brown, the under parts dirty white; a lighter stripe enlivens the face, and some black spots the back.

The young in their first plumage closely resemble the hen; but the young cocks may be recognised by examining the feathers on the throat, in which the down at their base will be found dark, and their backs are rather more reddish.

Varieties in colour are not uncommon, of which may be named white, buff, light grey, slaty, and black; also pied specimens are sometimes met with. I once took from a nest a beautiful white Sparrow, all the feathers of which had a narrow yellowish border. I reared it by hand, but unfortunately it died in the moult, all the new feathers were quite white; so that if it had lived it would have been perfectly white.

The nest is usually built under the eaves of a house, in any hole in the walls, in thick ivy or a hollow tree, and not unfrequently high up in the fork of a tree. It is formed of hay, fine roots, dried weeds, and such materials, and lined with feathers, hair, wool, and pieces of cloth; it is of large size, domed over, and in shape of an egg, with a hole at the small end. The eggs, from four to six in number sometimes, but rarely more, are very various in shade, mostly white, more or less spotted and streaked with grey; but I have sometimes found them only slightly spotted with reddish-brown. Incubation lasts a fortnight, and both parents feed the young almost exclusively on insects. If brought up by hand they may be reared on bread and milk, or bread and eggs, and they then become very tame. Bechstein says, "they will breed in confinement, and also with the Tree Sparrow, and hen Canary." I have, however, never succeeded in breeding mules from them, as they are so exceedingly rough in their courtship. Who has not heard an Irish row among the Sparrows at pairing time, when a dozen or so may be seen pecking, fighting, and chirping over one hen? Such a proceeding would drive all idea of love out of a timid hen Canary. The Sparrow, like the Lark, both bathes in water and rolls in sand or dust.

The song of the Sparrow, if such indeed it can be called, is composed of a succession of sharp broken chirps, devoid of any melody—a sort of excited Sparrow language, which sounds like *chow chow chitter a chow, chee chow chow*. Some writers assert that the Sparrow, if taken young, can be taught to sing. I have tried but without success, and I suspect that it is the Hedge Sparrow or Hedge Accentor which they meant: as Bechstein says, the Sparrow is quite incapable of learning to sing; but that they may be taught to fly in and out of the window, and to come when called. It is also recorded that "a clergyman in Paris had two Sparrows, father and son, which were able to repeat the fourth, fifth, sixth, and seventh commandments; it produced a highly comic effect. When in their quarrels over their food, one of them would gravely admonish the other, *Tu ne voleras pas* (Thou shalt not steal)."

The Sparrow is in food omnivorous, in habit bold and sly. It is to be found alike in all parts of the country, wherever the lone cot is built or the fields cultivated, as well as in the largest and most densely populated towns. In such places he feeds on any scraps or refuse he may find, whether of grain, meat, bread, or vegetables. He will take his bath in a puddle, and dry his

feathers among the smoking chimneys till his coat becomes as black and dirty as a chimney sweep or a mud lark; and it is surprising how he can escape his numerous persecutors, and evade the grasp of boy, or claw of cat—his two most deadly enemies, who are so numerous and ever on the watch for him; yet he appears equally numerous in the town as in the country, though from his dirty begrimed appearance he would scarcely be recognised as the same being as his spruce country cousin of the farm.

Much has been written about the injury done by Sparrows, and much also has been advanced in their favour. It is undoubtedly true that in some places and times they do considerable mischief, but the injury they do is apparent, and has been much exaggerated; whereas the good they perform is not so manifest, and has not unfrequently been quite overlooked. It has been my wish while writing these chapters, to call attention to the habits of our small birds; and without denying any injury they may inflict, also endeavour to show something of the good they perform in the economy of nature, and thus I hope to prove that they are more useful than hurtful. It was the custom, not many years back, for farmers to institute among themselves clubs for the destruction of Sparrows, and each member had to produce so many Sparrows' heads at each meeting, or pay a fine; but as these men are yearly becoming more enlightened, such practices are falling into disuse.

Bechstein remarks, "It has been reckoned that each Sparrow, taking the year through, destroys of corn and field crops the worth of one guilder, and that in a district of three hundred villages, six millions of Sparrows were to be found: consequently this multitude would destroy six million guilders' worth yearly." But he further remarks, "That this reckoning is fallacious any unprejudiced observer may perceive without my assistance; then by way of example, I can certainly keep six Sparrows in a room fed on nothing but corn the whole year for one guilder; and where, in all the world, would six million Sparrows be found in only three hundred villages? That must, indeed, be a land of Sparrows!" "On the other hand on the above reckoning their usefulness would be excessive. Reaumer has noticed that each Sparrow that has young ones, with a caterpillar or the larvæ of some beetle in its bill, flies to his nest twenty times in an hour—both male and female do this: consequently the pair destroy 40 larvæ of insects during the hour, or in a day of twelve hours 480, and in two weeks (about the time they would take to rear their young) 6720: therefore, in a district of three hundred villages, of six millions of Sparrows, it follows that in one breeding time 20,160,000 of caterpillars would be destroyed; they breed, however, two and three times a year, and then eat nothing but destructive insects."

It will readily be admitted that these calculations are overdrawn; nevertheless, they will show that there are two sides to the question. The Sparrow, unfortunately, has got a bad name, for he does do some mischief, and causes some annoyance; for instance, in the spring of the year he will fly into some suburban garden, and take his morning salad off young radishes or cabbage plants, and tender peas he will not despise; and failing these he will nibble the crocus or polyanthus blooms, or take his dust bath in the neatly raked flower-border, which are all very annoying. But he is a shy gentleman and may be easily scared from such dainties, while during the summer he will do a great amount of good by killing caterpillars, beetles, cockchafers, and other destructive insects. In the orchard he is exceedingly useful, like the Chaffinch, in clearing the buds, blossoms, and leaves of the fruit trees from caterpillars, that would soon cause such havoc as to destroy all chance of fruit. Mr. Bechstein cites a case in point. He says, "I know an estate that lies by itself, and where, on account of their mischief, they were exterminated. What took place? The owner never got any fruit, while the trees in other neighbourhoods bore well. The reason was that the caterpillars were not disturbed by the Sparrows. Through misfortune the man became wise, and introduced the Sparrows again."

It is just so with the agriculturist. The Sparrows during harvest frequent the corn fields in flocks, and empty ears proclaim they eat corn; the fact is seen, the damage is exaggerated, no account or notice is ever taken of the number of insects they have killed through the spring and summer, not one thought is ever bestowed as to how much corn those insects would have prevented growing if the birds had not eaten them. Such knowledge was hid and not thought of, yet those insects would have caused the loss of a hundredfold what the birds could effect during autumn. Are they not, then, to have small wages in the autumn and winter for their assistance during spring and

summer? I remember the account of a large landed proprietor, in East Kent, who laid and won a large bet that he would kill all the Sparrows in his parish by a given time; but though he won his bet he lost more by his crops that year.

The anecdote of the Baltic corn merchants and the Sparrows is also known to many, how, considering the great injury supposed to be done to them by the Sparrows, they by means of rewards and otherwise exterminated them, when the weevils and other corn-destroying insects increased so rapidly that they lost more than by the Sparrows, and were glad to send to other places to procure Sparrows to turn out. Some people say they must be kept within due bounds. That is quite correct; but there are bounds they cannot pass—Nature has set those bounds. When they have destroyed all the insects they will die, or fly off to where other food can be found; for it must be remembered that it is only in harvest time they can find corn enough to live on. If, therefore, they have killed all the insects, they could not live during that time when no corn was to be got. I think it must be admitted that the good they do more than counterbalances the worth of the corn they eat, or any other injury or annoyance they may cause. I much regret to see the wanton destruction of eggs and young birds by boys; of birds, too, that come to this country only in summer, to keep in check the myriads of destructive insects, and that never take any grain. Such birds never possibly could be too plentiful; and were it not for our small birds, the insects would soon convert our beautiful little England into a waste: as it is, many of our crops suffer severely from the attacks of destructive insects, which would be much lessened if the birds were more numerous. I fear it is often the fact that man in his thoughtlessness on noticing some slight injury destroys those things that are working for his good.

But, to return to the Sparrow. It is a common practice in some parts to hang up earthen bottles with large mouths made on purpose for the Sparrows to build in, and of which they readily avail themselves; they are, also, sad tyrants to the poor Martins, which often find their nest pre-occupied by them when they return; or they will at times expel the Martins from their newly-constructed residence. The Martins gather their friends to assist them against the intruders, but the Sparrows are too determined and pugnacious for their weak beaks, and the Sparrow generally remains the triumphant conqueror. I have, however, read two or three independent accounts of the Martins having plastered the Sparrow in, and so doomed him to be starved to death. The Sparrow is so shy and wary that he is not easily caught, and he soon becomes up to traps, however temptingly they may be baited.

The most common trap is that composed of four bricks, or three bricks and a tile, the tile being so supported with three sticks that it will fall down when the bird hops upon the strod. These traps sometimes succeed in taking a few young birds, or now and then an old one may be caught off its guard; but the Robin, Hedge Sparrow, and Tomtit are more frequently the victims. Another form of trap is the basket—a round wicker construction made of unpeeled osiers, with flat top and a funnel-shaped entrance in the middle, through which the birds can drop in but cannot fly out; if a bird is put in as a decoy, and the trap well baited and placed in a good situation, they are said to catch a great many. Another manner of taking Sparrows is by batfolding: this is done with a net attached to two long light poles, which are loosely fastened together at the top, and being bent in the form of an arch; thus the net can be spread over ivy, hay or corn stacks, and such places as the Sparrows retire to roost in. The Sparrows being then driven out, they fly into the net; the poles are then folded together, so that the birds are caught as if it were in a bag. Boys are very fond of this sport, and in winter evenings they sometimes catch a great number, which are converted into Sparrow puddings.—B. P. BRENT.

THREE-YOLKED EGG.—A Dorking hen belonging to a gentleman in Calne recently laid an egg which weighed over $4\frac{1}{2}$ ozs., and was $6\frac{1}{2}$ inches round and $8\frac{1}{2}$ inches lengthways, and had three yolks—one small.—ALFRED HEATH, *Calne*.

BEE ROBBERS.—The American *Bee Journal* says: "When robbing bees attack a weak colony having a fertile queen, it is advisable to remove it from its stand to a dark chamber or cellar. Set an empty hive in its place, strew therein a handful or two of the stems and leaves of wormwood, and rub the front of the hive

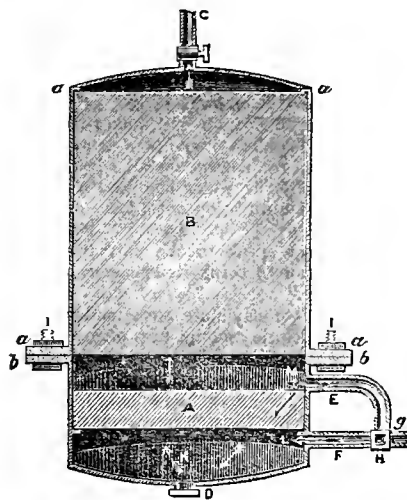
and the bottom board therewith. The assailants will soon forsake the spot, and the colony may be replaced on its stand on the evening of the following day."

FILTERS.

DALKHE'S SILICATED CARBON FILTERS.—Mr. Dalkhe, a German chemist, has recently taken out a patent for improvement in the material and construction of filters as applied to the purification of water and other liquids. The material that he employs is a combination of animal charcoal with silica and other ingredients. This composition, when in a soft and plastic state, is capable of being manufactured into any desired form, which is rendered permanent and fixed by heating. By the addition to the mixture of a varying portion of organic or destructible matter, which is consumed when the filter is heated, any required amount of porosity can be given to the material, which can be thus fitted for various purposes; and, what is of extreme importance in a practical point of view, the degree of porosity can be rendered perfectly uniform throughout the whole filter, so that the occurrence of any coarse or open part through which the water runs comparatively unpurified is perfectly prevented.

This capability of varying the degree of porosity, and consequently of the filtering power in the medium employed, has been most ingeniously applied by Mr. Dalkhe to effect an important improvement in the construction of his filters; an improvement which renders them more rapid and more permanent in action, prevents their clogging, enables a finer and consequently more effective filtering medium to be employed, and, above all, renders them in reality what most other filters have been in name merely—absolutely self-cleansing.

The mode in which these desirable advantages have been obtained will, perhaps, be best illustrated by a reference to the following engraving, which shows the filter as applied to drinking fountains, manufacturing purposes, &c. The apparatus which is shown in section, consists of an external case, formed of metal, or other suitable material; this is formed in two parts, *a*, *a*, *a*, *a*,



and *b*, *b*, *b*, *b*, which are capable of being fastened together by nuts and screws, as shown at *i*, *i*. The water to be filtered enters by the pipe *g*, passes first through the coarser filtering medium *A*, then through the finer filter *B*, and finally flows off pure through the exit-pipe *c*. It will be observed that all the coarser impurities of the water, those which would very speedily clog any filter fine enough to be really efficient, are arrested by *A*, and consequently do not interfere with the action of *B*. These impurities accumulate in the cavity *K*, from whence they may be readily removed from time to time as may be requisite, by allowing the water to pass into the filter through *K*. This is instantly done by turning the three-way cock *H*; at the same time closing the exit-tap *c*, and unscrewing the tap *D*. When this is done the water entering the upper cavity will be forced in the reverse direction, through the coarser filtering medium *A*, and will carry off, through the orifice *D*, all the slime and

impurities which that filter has been the means of arresting. It is scarcely requisite to state that this reversal of the taps does not occupy more than a few seconds of time, so that without any trouble the filter can be cleansed as often as may be requisite.

This combination of two filtering media is applied in the same effective manner, and with the same facility of cleaning, to the construction of the small portable syphon fountains, which are adapted for household use where small quantities of filtered water only are required.

Having spoken of the mechanical construction of these filters, it is desirable to notice their chemical effect. This we are enabled readily to do, inasmuch as the report of one of the most eminent of the analytical chemists of the present day has been placed in our hands. As this report was made privately to one of the government offices prior to the adoption of the filter in that department of the public service, we are not at liberty to state the name of the authority we quote.

"I have examined Mr. Dalkhe's filter, and I am able to send you a very favourable report of it. In the first place it possesses the mechanical qualities of a good filter—that is to say, it filters quickly and efficiently. It is also a chemical filter. Thus it removes some of the dissolved saline matter, principally bicarbonate of lime, whereby the water is rendered softer; it also removes some of the organic matter, including all the colouring matter.

"A gallon of clean Thames Ditton water, supplied by the Lambeth Water Company, had, before being filtered, a distinct, though pale, greenish-brown colour. By filtration it became perfectly colourless. I enclose the evaporated residue of a gallon of the unfiltered water supplied to my house by the Lambeth Company, and also the evaporated residue of a gallon of the same water after filtration through Dalkhe's filter. You will see that the colouring matter has been completely removed by filtration. The results of the analyses were as follows:—

No. 1.—Unfiltered.	No. 2.—Filtered.
Saline matter	18.92
Organic matter	0.94
	19.86
Hardness.....	14 degrees.....
	8 degrees.

"The filter has the property of removing dissolved lead from water. Thus a gallon of distilled water, to which a grain of neutral nitrate of lead had been added, became black when touched with sulphuretted hydrogen, but after the water had been passed through Dalkhe's filter not a trace of lead could be detected in it. Again, some clean metallic lead was digested in distilled water, whereby the water acquired a decided plumbic contamination, but after filtration not a trace of the metal could be recognised in it.

"Although I cannot speak to the permanent action of the filter, I have no reason to think its efficiency will be impaired save by prolonged use."

These experiments, we may state, were made with an ordinary domestic filter, in which no amount of pressure could be applied save that of the mere gravity of the water resting on the filtering medium. For manufacturing purposes, where such an apparatus as that figured in our engraving can be employed, and where the pressure of a column of water can be obtained by supplying the filter from a tall tube, a much finer medium can be used, and consequently the purifying effect vastly increased.

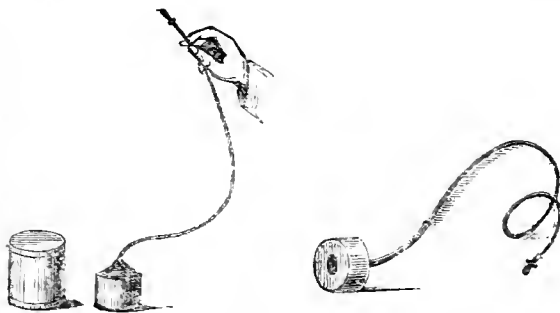
The value of this invention has been acknowledged by several scientific authorities. In consequence of the reports of Drs. Letheby and Edwin Lankester in its favour, it has been adopted by the Drinking Fountain Association, and has been in active use for the last six months in several of their fountains, having met with entire approval, as being capable of standing the severe test of affording a constant supply for that space of time without clogging or deterioration in use.

It is evident that the patent silicated carbon can be applied to every variety of filter. It has already been manufactured in a form applicable to the ordinary domestic house filter, capable of purifying from five to twelve gallons daily, and to the small portable syphon filters.

The apparatus figured in our cut can be applied to the supply-pipe on any cistern, or placed in the service-pipe of a house, with the least possible derangement of the fittings.

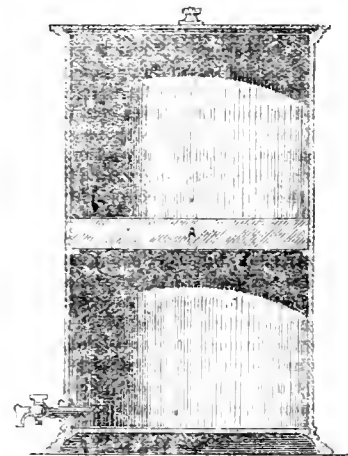
LAVATER'S PORTABLE FILTER.—In this modification a small block of the silicated carbon is enclosed in an Indianrubber covering, to which a tube, about 18 inches in length, furnished

with a glass mouthpiece, is attached. On placing the filter in the most turbid and clayey water and sucking through the tubes a stream of purified fluid flows into the mouth. The advantage



of this contrivance to travellers and tourists need not be insisted on; a really efficient filter, not quite 1½ inch in its longest measurement, is thus provided. This arrangement is the invention of Mr. Lavater, and has been secured to him by letters patent.

TWO-GALLON PLAIN WHITE CHINA FILTER.—This is a very



elegant article, manufactured expressly for Messrs. Maw & Son, Aldersgate Street, who are the sole wholesale agents for its sale.

OUR LETTER BOX.

KERRY COWS.—A correspondent. "A. S. B." wishes to know a breeder or importer of Kerry Cows, from whom he could obtain one, or more.

LIGURIAN BEES (T. H. Rotherham).—The Italians require larger hives, as their queens are more prolific than those of the black bee. They will make use of combs built by the latter, and a partly-filled hive is always a great assistance. Keep them apart from the common species.

CHEAP BEE-HIVES.—In reply to a correspondent from *Forkshire*, we beg to inform him that we find that Messrs. Neighbour & Son, of 149, Regent Street, supply Payne's Cottage-hives at 2s. 6d. each.

BEES NOT SWARMING (J. W. Darlington).—You have no remedy but patience, as we know of no means of expediting natural swarms. Adding more bees might have some effect, if no quarrel took place. We do not think you would succeed in catching the queen by placing a small hive on the top. Questions on bee management cannot be replied to privately.

HARE-RABBITTS (II. R.).—We believe that no cross between the two has ever been effected. Certainly, no well-authenticated instance has been quoted.

LONDON MARKETS.—JUNE 17.

POULTRY.

Still a good supply, and quite an average demand. The season of 1861 will have been a profitable one for those who were fortunate enough to have poultry for sale.

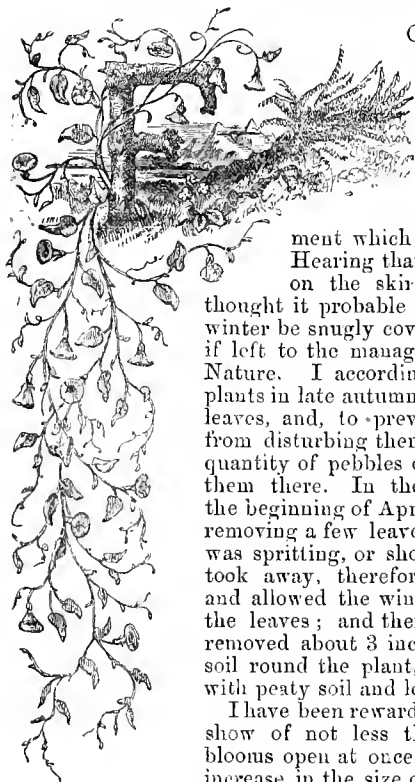
	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	4	0	to	4	6
Smaller Fowls.....	3	0	to	3	6
Chickens.....	2	3	to	2	6
Ducklings.....	3	0	to	3	6
Goslings.....	5	0	to	5	6
Guinea Fowls.....	0	0	to	0	0
Levretts.....	0	0	to	0	0
Pigeons.....	0	8	to	0	9
Rabbits.....	1	3	to	1	4
Wild.....	0	8	to	0	9

WEEKLY CALENDAR.

Day of M th	Day of Week.	JUNE 25—JULY 1, 1861.	WEATHER NEAR LONDON IN 1860.					Sun Rises.		Sun Sets.		Moon Rises and Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	m.	h.	m.	h.	m.	h.				
25	Tu	Silenes.	29.815—29.691	deg. deg.	S.W.	.56	m.	h.	m.	h.	m.	h.	17	2 16	176	
26	W	Convolvulus.	29.901—29.812	68—36	S.W.	.01	46	3	19	8	25	10	18	2 29	177	
27	Th	Andromeda.	29.883—29.695	63—48	S.W.	.14	47	3	19	8	39	10	19	2 41	178	
28	F	QUEEN VICTORIA CORONATION.	29.759—29.703	67—45	S.W.	.18	47	3	19	8	53	10	20	2 53	179	
29	S	St. PETER. [1839.	29.854—29.790	67—42	W.	.22	48	3	18	8	9	11	21	3 6	180	
30	Sun	5 SUNDAY AFTER TRINITY.	30.193—30.081	63—38	N.	—	48	3	18	8	24	11	22	3 17	181	
1	M	Achilles.	30.278—30.209	74—47	N.W.	—	III		VIII		43	a 11	23	3 29	182	

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 73.3° and 50.4° respectively. The greatest heat, 93°, occurred on the 27th in 1846; and the lowest cold, 36°, on the 29th in 1839. During the period 135 days were fine, and on 96 rain fell.

CULTURE OF CYPRIPEDIUM CALCEOLUS.



FORTUNATELY

successful in increasing this rare British plant for several years, I venture to detail the treatment which I have adopted. Hearing that its habitat was on the skirts of woods, I thought it probable that it would in winter be snugly covered with leaves if left to the management of Dame Nature. I accordingly covered my plants in late autumn with a hatful of leaves, and, to prevent Mr. Æolus from disturbing them, I put a small quantity of pebbles on them to keep them there. In the spring, about the beginning of April, I found upon removing a few leaves that the plant was sprouting, or showing shoots. I took away, therefore, the pebbles, and allowed the wind to take away the leaves; and then very carefully removed about 3 inches deep of the soil round the plant, and replaced it with peaty soil and leaf mould.

I have been rewarded by a splendid show of not less than twenty-five blooms open at once, and a manifest increase in the size of the plant. A friend who saw it lately, told me that

he once saw a large bank of this plant growing wild, where it had the advantage of a quantity of fallen leaves, and also the crumbling lime shale of a cliff which overhung it; so I am thinking of adding limestone chippings to my mixture next spring.

I believe that many of our most beautiful British flowers might be successfully cultivated if their natural requirements were attended to. For instance, the Orchises can only be grown in a sod of grass—they want it for protection. If exposed to the bare soil of a neat bed they soon perish; and the same occurs to *Primula farinosa* and many others of the “Wild Flowers of Britain.”—W. X. W.

THE CULTURE OF POTATOES IN YORKSHIRE.

RESULTS OF THEIR STEMS BEING FROSTED—CAUSE OF THE MURRAIN.

IN THE JOURNAL OF HORTICULTURE for May 21st, your correspondent, “THE DOCTOR’S BOX,” asks for assistance in trying to prove the effects of frost upon the Potato. I propose

No. 13.—VOL. I., NEW SERIES.

at present to offer a few facts and observations about that esculent. In Yorkshire the early Potatoes are placed to sprout in boxes 3 feet by 2 feet, and about 3 inches in depth, about the middle of February. The Potatoes are set in the boxes with the eyes upwards, and only one layer in a box. In the corner of each box a piece of wood 1 inch square and 6 inches long is nailed to allow of the boxes being placed one upon another. They are then piled tier above tier in the kitchen (the best place) or anywhere from which frost is excluded. I have found the heat of these places to range from 45° to 60°, but generally 50° is the mean.

When the Potatoes have sprouts from half an inch to three quarters of an inch long they are hardened a little in an out-house.

Planting takes place chiefly from the 20th of March to the 10th of April, in rows 22 inches apart, and the sets 9 inches asunder in the rows. The rows are made generally by hand, but sometimes with the plough 8 inches deep, and receive from fifteen to twenty tons of well-rotted manure (horse or stable manure is preferred) and 2 cwt. of Peruvian guano per acre. The soil, in most cases, is light loam on sand, and sometimes sand and gravel. The sets are covered with the soil about 6 inches deep, and towards the latter end of April they are slightly raked over. This breaks the clods, destroys some myriads of seedling Chickweed, Groundsel, and other weeds. The hoe is plied freely to loosen the soil and to keep them clean, otherwise the crop would be indifferent. Finally they are earthed up when from 4 inches to 6 inches high with a hoe similar in shape to a spade of playing-cards; this leaves the rows wide and the furrows narrow, thus preventing green-ended Potatoes, which are unwholesome and unmarketable, except for pigs, &c.

Treated in this way they are full-sized from the 20th of June to the middle of July, according to the seasons, and are then sold. Turnips take their place, sometimes Swedes transplanted, but generally Red Globe and Bullocks. An acre of early Potatoes is worth £40 on an average, but I have known them sold for £20, and once £75 was realised for an acre (statute) and twenty-five tons of Skiving’s Swedes after them the same season. This acre has grown early Potatoes ever since I can remember (at least twenty years), and it is Potatoes yet.

Formerly two crops of Potatoes were had from the same ground in one season, one for sale, and one for seed. The larger Potatoes were planted for the first crop, and the smaller ones for seed. In both cases they were sprouted before planting. But in 1848 the second crop was a complete failure from the effects of disease, and that plan is now abandoned.

I forgot to say that 4 cwt. of salt are thrown on the land per acre, and ploughed in previously to sowing the Turnips, which is found to prevent the maggot from attacking them.

The sort grown is the Ash-leaved Kidney Potato; and during the season, which lasts a month or six weeks, about one hundred tons leave the York Station daily for Newcastle-on-Tyne and other places.

During the last fifteen years early Potatoes were cut off to the ground by the frost six times, with an average temperature of 21° or 11° of frost; three times severely injured by a mean temperature of 24°, or 8° of frost; and twice slightly injured with the thermometer at 27°, or 5° of frost.

When cut off to the ground half the value of the crop proved at taking-up time to be lost, from the fact that frozen stems send up three or four for each one cut off, and the renewed stems are considerably weaker; consequently the produce is

No. 665.—VOL. XXVI., OLD SERIES.

small in size, or what the Yorkshire men call "chats," being not worth half so much as the other or saleable Potatoes.

This is not always the case, for very much depends on what strength they have attained previously to their being cut off. If only just up—say an inch, the produce is not so much lessened; but if cut off when the stems are 4 inches or 5 inches high, the produce does not pay tillage, seed, and manure; if not cut off to the ground they shoot out or branch above the soil, and the crop is slightly less, but ten days or a fortnight later.

I am speaking here of field culture; but I have grown Potatoes in gardens on different soils, and in various ways, and have obtained varied results; but I will only say now, that I have not found any material difference between those grown in a garden and those in a field, excepting that field-grown Potatoes are finer in quality, less liable to disease, and more wholesome and nutritious than garden Potatoes frequently are. I believe the Potato to be too highly fed, thereby causing the root to impel more crude sap into the leaves than can be properly acted upon by the air, or be digested; and, of course, the leaves, or digestive organs, send down that which forms the tubers; and this I believe to be the cause of the Potato disease—namely, a deficiency of digesting power, in proportion to the food taken in by the roots.

A diseased Potato is deficient in starch, and that deficiency is capable of producing the disease; for until some peculiarity (not belonging to the plant naturally) becomes developed, no fungus acts upon it.

Dryness produces Thrips and Red spider; too much heat and too little air aids Aphids; an unhealthy root action brings on Mildew on Vines, &c.; too much moisture (particularly if the air be cool) causes decomposition; and there the mould fungus fixes its tent—we call it damp, but it is really the effect produced by decomposition. And may I not ask, Is the Potato disease not to be traced to something similar? I think the "ayes" have it.

If we place eight Potatoes in pots in the open ground, 6 inches below the surface, the Potatoes in them, and other eight the same (to be treated differently) we shall find that they will grow but little until the temperature of the earth attains 45°; and we find that they do not appear above ground until the air has a mean temperature of 50°: does this not tell us when to plant? Following them up we shall find that they have made their growth (as far as regards size of haulm) by the middle of July, when our temperature is at its climax; and after that a ripening process is undergone—by far the highest point that belongs to successful horticulture, and, to all intents and purposes, much more important than the commencement and formation of the visible growths. We have sixteen pots, and as many Potatoes in active growth the beginning of July. Take eight and leave eight, place the eight you take away in a frame, plunge them in the bed 6° warmer than those in the open ground, or in a bottom heat of 70° to 75°, and ripen them off with that temperature, letting the temperature of the air inside the frame range during the day from 65° to 85°, giving but little water after they have been in the frame six weeks, and we shall find flowers, Potato apples (a rarity now), and in August sound healthy tubers. Air must be given them during the day, and the lights entirely removed at night, placing them on at seven o'clock in the morning and taking them off at sunset. This plan has proved to be correct thrice. I need not say those which are left outside will be diseased. All I know is, they will fare the same as others do that grow in the garden.

I hope to return to the subject again when leisure permits.—
GEORGE ABBEY, *Gardener to C. Hailstone, Esq., Horton Hall, Bradford, Yorkshire.*

FERNS AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION.—Will Mr. Beaton allow me to point out that he has, inadvertently, in the continuation in your No. 12 of his report of the Royal Horticultural Society's Show, made my *Gleichenias* appear to belong to Mr. Williams' group? four of nine being in boxes, 3 feet square, which require, and had, four men as he has stated, to remove them to and from the truck. I had six kinds of *Gleichenia*, and three of these quite new. Messrs. Williams and Veitch, four kinds each. The *G. microphylla* described was probably my *G. hecistophylla*, which is so large that it formed, next the wall of the arcade, the centre plant of my group, which, by the way, had collectively scarcely half the space asked for and really required. Mr. Beaton's mistake was probably the result of the difficulty of comparison

of plants placed, as mine were, more than a hundred yards from the other three nurserymen-competitors' collections, and which were close together in the conservatory; two of them being side by side.—ROBERT SIM, *Foot's Cray Nursery, S.E.*

CROSS-BREEDING PLANTS.

THE bustle consequent on the May meetings has prevented me from giving sooner more explicit answers to Mr. Darwin on the subject of crossing.

I did not comprehend his meaning about the natural crossing of varieties, which is familiar to the farmer as to the gardener. I put the cart before the horse, and understood natural varieties crossing among themselves, instead of artificial varieties crossing naturally. Artificial varieties in the flower garden will cross naturally with as much freedom and with the same results as in the farm Turnips or the garden Cabbages. And there is an error at that point in the reasoning of some of our best scientific writers on plants. They say the effect of such natural crossing of varieties is a reversion to one of the original types; but I know of no instance in which that theory is sustained by the result, and I endeavoured for some years to force *Calceolarias*, and *Fuchsias*, and some other kinds back to their originals with the same unvarying consequence.

As far as I can see, I cannot believe that reversion will take place under cultivation. I know that "improvement," as we call it, among flower garden races has its origin in cultivation and not in crossing; and as a consequence I take reversion, if it is possible, to be the effect of want of cultivation. At all events, I am perfectly clear that all our skill could not now make one *Calceolaria plantaginea* from all the sorts under cultivation.

The real effect of the natural crossing of artificial varieties is exactly the same as we know to be the case in every instance in which we apply pollen—the pollen of the strongest, or coarsest, as some would say, takes the lead. There are, indeed, very few men who ever dream of the pollen of one individual flower being of two distinct natures, and capable of originating two distinct races of plants from one and the same application on two mothers, but it is so most certainly. But let me be understood. A is a breeder from which I want seedlings, and B is the father I wish for. Now, I shall take two As and one flower of B; out of the qualities of the pollen of one flower of B I shall produce two distinct races. I have done it a score of times, and I told the secret and showed the way of manipulation to Dr. Hogg, three years since, in my own garden; but I hope he will not say exactly what that way is till we see if we cannot, by some such means, raise the spirit of gardeners from commonplace things to the higher pursuits of cultivation by cross-breeding, the spirit of the age being all but dead on that one subject.

"How do you know the strongest plant influences the progeny?" I may be asked, and if I have nothing to prove the fact, I may be told the thing is a mere fancy. But the breeders of animals, from the canary to the racehorse, can give you the ups and downs of the crossing of their respective races without the samples to prove what they advance.

I had hoped his majesty of the cross-breeders would himself have answered Mr. Darwin about the *Anemone apennina* and the *Mathiola incana* and *glabra*. He is a reader of this work; and if I petition his majesty, who may have been from home on "drill husbandry," he or his gardener, may see it without my writing a private letter.

There is a prescription for proving in two months the assertion about one kind of pollen taking the lead of four other kinds on the stigma of a *Geranium*. The leaf invariably goes after that of the pollen parent in the Scarlet races of *Geraniums*. Cross Tom Thumb with a *Horseshoe* kind and the seedlings are all horseshoed in the leaf. Cross the deepest-marked *Horseshoe* kind with the pollen of Tom Thumb, and all the seedlings are plain-leaved. But to be perfect, the two kinds should be forced into flower before others of their kind had opened their flowers, for fear of admixture. Now, knowing that feature may be relied on, take Baron Hugel, the easiest to cross of all the flower-garden kinds, as it never has an anther of pollen, nor refuses to breed freely with every other kind of the same race. Put the pollen of Tom Thumb on four of the five divisions of the style, and the pollen of the Cottage Maid, or any other equally coarse *Horseshoe* kind on the fifth division, and your seedlings will be all horseshoe-leaved. That proves one side of the question.

In two months the seeds will be ripe, and up in the third, or rough leaf, showing the characteristic of the strongest or coarsest parent. But mark the four divisions with one or four kinds of the Horseshoe race called *Minimums*, and use *Tom Thumbs* on the fifth, and all the seedlings will be plain-leaved.

That is the simplest way I can suggest, and the surest is with the single *Hibiscus rosa sinensis*; but it takes five years of the best cultivation to get all the seedlings to bloom, and some of mine did not offer to do so before the seventh year. Ten years are a short period in the experience of a cross-breeder of any race. When Mr. Darwin says (page 211), that "experiments are tedious and very often fail," I hope he did not mean the application to gardeners, for of all men gardeners have most need of the proof by experiments. It has been by the easy method of pinning one's faith to the sleeve of some priest or prophet, that the spirit of inquiry has been brought down so low on the gardener's scale that electricity itself seems now not able to move one of his muscles out of routine and band-to-mouth knowledge, be he never so wrong.

From what Mr. Darwin says of his experience of flowers fertilised by their own pollen shows how very differently botanists and gardeners look at the same flower. Has he, or any other botanist, remarked how flowers in the composite order are provided with the means of self-fertilisation? and yet were it not for the proximity of the florets there would be most chances against fertility. Botanists do admit the alliance between our little blue *Lobelias* and their *Dandelions*, though almost grudgingly. But a cross-breeder sees no difference between a scarlet *Lobelia* (*L. fulgens*, say) and a *Chrysanthemum*—at least, I do not find any difference between them for my part of the examination. Now, if all the composite flowers had their florets scattered up and down on a long stalk, instead of being crowded into one head, and bound round with a hygrometric belt, to which most syngenesious involucre may be likened, the chances are that few seeds could be obtained from them.

There are hard upon ten thousand species of composite plants, and by a rough estimate the florets of such flowers may be put down at fifty to each flower; then if we take but one flower of every species of composite, and reckon every one of its fifty florets a complete flower of itself, as it is in respect to the process of the cross-breeder, we shall have half a million of flowers in one order, in which provision is made that none of the flowers can fertilise itself: therefore, when I said that not a flower in a thousand is fertilised by its own pollen, it was only as a drop in the ocean as compared with nature. I said I had very little knowledge of crossing composite flowers; but from what I saw as an insuperable difficulty against crossing them, I concluded that in that order the parts for crossing are all laid down on one principle, however widely that principle might vary in different sections of the order—and the principle is, that no floret is fertilised, or is intended to be fertilised, by its own pollen. But to make this clear to the amateur and young gardener, for whom all our writings are more especially intended, let me explain the process for fertilising a composite flower.

The flower of a common *Daisy* on the lawn is a congregation of flowers on one common head, and I have assumed this congregation to be fifty in number. On a large scale the flowers in the centre of the *Daisy* might be likened to *Polyanthus* flowers. If they were all cut just below the pincye, the pretty parts gone, nothing is left but the bare tubes; and if these tubes were now sealed over, and the thread on which the pinhead rests is just inside the sealed tube, the style or thread is just like the finger of a child in a glove, but the thing is more complicated. Bear in mind that the finger of the child represents the style or female part, and know also that the top joint of the glove is lined with an extremely thin lining, and that on the inner surface of this lining stand the anthers with the pollen or male part. The top of the finger, then, stands under two covers—the glove finger and the lining, and the pollen is round the top of the lining. Now, the style (finger) grows up and splits the lining first; then the finger of the glove gives way, and the point of the style is out in open air at last; and if there was a pinhead on the point, the style of all composites at that stage would look just like the little head in the centre of a piney *Polyanthus*. But the way the pollen gets up to fertilise the top is one of the greater characteristics of this great order; and strange to say, no botanist that ever I read explained how the crossing or fertilising is effected.

The way is very curious. There is a raspy surface, or a gummy surface, or a feathery-like surface, round the top of the style,

and for half an inch, more or less, according to the kind, under the point; and when the point is forcing its way through up through the lining and splits it, the pollen is scraped off the lining by the raspy surface of the upper part of the style, or by the feathery surface, or the pollen sticks on the gummy surface and is carried up right into the open day. A casual observer might think the pollen is then doing its own work. Not at all, the process is yet more curious. The pollen is then only exposed to the open air, which seems essential to its acting properly. Most of the flowers which I have examined were some common garden plants, and they held the pollen airing for twenty-four hours, some more, and some less, and no more than two rows of florets all round the outside of the centre pushed up the styles the first day. At the end of the twenty-four hours the stigma or point splits into two parts, and they roll back like as two of the five divisions of a *Geranium* style. How is the pollen, then, to get to the upper surface of these two divisions or horns? It never gets there at all, and unless other fingers or styles were to push up near the first set with their pollen, the first set could not be fertilised, as their own pollen could not reach the spread of the horns. It is the pollen of the second set of risers which fertilises the horns of the first set. Two or three florets in the centre, or very near it, are the last to rise, and as their own pollen cannot reach them, and there are no more to help on the good work, these few florets are always barren of seeds; or, if there is a semblance of seeds, there is no life in them.

There is no end to the shapes which the horns of the style assume in composites—some are as in the *Pink* and *Carnation*, some like barbed shafts, some like a pair of tongues, and so forth; but in all composite flowers the style splits into two parts when it is ripe for the pollen, and every style in all the endless form of composites carries up the pollen with it, and airs it before that style is ripe for the final process; and if there were no insects or wind to disperse or disturb the pollen, its own pollen could never fertilise one floret out of all the composite order. The lining round which the anthers stand, or rather the pollen, is called the syngenesious membrane, the membrane being the edges of the anthers cohering, and the word is equivalent to *Hymenocallis*.

When I mentioned last winter that we should get all the *Gazanias* into one border, and give them orchard-house protection in order to be able to cross them, I intended, as I have just done, to explain the nature and the extreme difficulty of crossing any composite flower, and I am not aware that a single instance of any one having really gone through the process is on record. When I said I knew no difference between a *Dandelion* flower and the flower of a *Lobelia* in the ways of crossing, you can see now what I meant, which was merely a single floret; the anthers of all the *Lobelias* cohere into a united membrane, or lining in the tube, of the flower (the floret), and the style has to pierce through that membrane and disperse the pollen, just as in the floret of a composite, only that oftener than not the fringe which encircles the stigma of *Lobelia* keeps some of the pollen in readiness for the style, and there is little fear of its reaching the right part at the proper moment.

All the best garden scarlet and crimson *Lobelias* resist every effort at breeding after the second, or, at most, the third generation. I never could answer the question, Is air essential to the proper acting of the pollen? Most of the *Campanulas* are fertilised without airing the pollen; and it would seem from Mr. Darwin's experiment with *Leschenaultia*, which is highly interesting, that the pollen of that family may be aired before it fertilises, if not it must be aired before it is fit for use. But there are two obstacles to that view of the case. If it must be aired, it has to remain in the cup, or indusium, for three weeks or more after being otherwise ripe and shed before it can get to the air, which seems too much roundabout for a process of Nature—Nature's plans being always more simple than that in detail; and secondly, when insects disturb the pollen, as Mr. Drummond told of, its fertility seems gone altogether, for we never had a supposed natural cross from the locality of the family. A cross-breeder would expect more wildings from this one family of two species than from the largest family of Australian plants. A breeder would call all the purple and yellow kinds one species only, and the blue the other. Then yellow and blue in one family, and that family having never yet branched off into endless forms, is only one more difficulty among the thousand which already beset the path of the cross-breeder.

I can answer Mr. Darwin's question about the "self" coloured

Pelargoniums. I crossed a score of such flowers, and found no difference in the seedlings. Mr. Catlough told me he tried them for seven years running, and never obtained a "break;" but I did not notice in what part of the truss a single "self" appeared. The more usual way is for a whole truss or a whole plant to have all the trusses at one time all of one colour. I once had one flower of a genuine wild species of Cape Pelargonium—a most hideous-looking flower, in a truss of one of the greenhouse bidders, I think Touchstone or King Rufus.

Of course, I do not mean to make a secret of how two races of Pelargoniums could be made out of the pollen of one flower; but I shall give time for young gardeners to exercise their wits in trying to account for such a thing or how to do it. But the first, and the last, and the centre flower of Pelargoniums, come all alike under the like circumstances; and if you cut off the stalk and a whole truss when you see the seeds have been fertilised, and are able to ripen them under a glass case, as I have done repeatedly, you will find no difference in the seedlings from another truss on the same plant which has been fertilised by the same pollen.

D. BEATON.

PANSIES.

BEFORE entering on the subject of Pansies, I should like to thank Mr. Darwin for his notice of my remark about the inconsistency of the heart blooms of Auriculas, and also for the lesson he quietly reads one as to want of accuracy in observation. Whatever may be one's opinion as to the theory with which his name is identified (and I for one humbly beg to differ *in toto* from his conclusions), there can be no question as to the manner in which he has so industriously collected his facts, and to the spirit of close and accurate observation which he is inculcating on all lovers of nature. I have never kept any register such as he indicates; but next spring, if my life is spared, will do so. Though there is this to be borne in mind, that where, as is sometimes the case, a plant throws up two trusses, I invariably pinch off the centre one from the very peculiarity; and in scarce sorts must still do so, as I cannot forego the sight of the bloom: and I believe got both artist and myself into a scrape by sending Mr. Andrews a heart bloom of Chapman's Maria—a very scarce and valuable sort, which he copied accurately enough, but which was, though in its own class, quite out of character.

And now as to Pansies. The hot seasons of 1858 and 1859 had so completely spoiled one's interest in these flowers, having proved so fatal to them here in the south, that I had given up their growth; but was induced this season again to try them, and am truly surprised to find how great the advance has been in the last three or four years. Very few of the flowers of four years ago remain in the lists now; and they are succeeded by others, which leave but little for the hybridiser to attempt and meet all those requirements which the "conventionalities" of florists demand. The class of Belgian or Fancy Pansies seem to me to offer the best field now for the hybridiser. They have great peculiarity of marking, and although defective in form, yet are vastly improved since their first introduction; and I have little doubt but that, by a careful crossing with some of our best English sorts, some very desirable novelties will be ultimately obtained. I have heard people say that with these dense eyes you will never get substance. This I do not agree with, and I saw one or two varieties at the late exhibition which seemed to me to indicate a rapid march thitherwards. And be it known that to our Scotch brethren we are indebted for by far the larger portion of the valuable additions of late years. They are in many points ahead of us. As raisers of Auriculas, Ranunculuses, and Pansies they have fairly beaten the southerners, and this with all the disadvantages of climate; for so great is the difference, that the great annual contest of the Scottish Pansy Society will not be held until the 22nd instant, when not a bloom in these southern counties will be worth looking at. It is a contest to which all lovers of Pansies will look with some interest, as none but first-class flowers will receive the highest awards. Having been present at most of the exhibitions where they have been shown in London this season, I have taken notes of such as, compared with those I have grown myself, seem to my judgment really good and valuable flowers, and would add that there seems to be an advance not only in the flowers themselves, but in the vigour and constitution of the plants—an object most desirable to attain in all classes of florists' flowers.

SELES.

I was standing by the Judges at the Crystal Palace Show, and appealed to when they were hesitating as to the propriety of disqualifying two stands on account of the very large quantity of dark selfs that they contained, many of which it required a very discriminating eye to detect the difference in. I have described underneath a few of those which seem to me to be most desirable.

1. Alexander McNab (Downie, Laird, & Laing).—An exquisite flower of first-rate properties, smooth texture, and circular in outline. It was awarded in June, 1860, at the Scottish Pansy Society's Exhibition the prize as the best flower of any sort. It is a dark self, beautifully shaded.

2. Cream of the Valley (Hooper).—A very beautiful white, slightly yellowish, dense eye.

3. Felat (Downie, Laird, & Laing).—A dark self, slightly shaded. Of good form and substance.

4. Miss Carnegie (Downie, Laird, & Laing).—A beautiful glossy black self, not so large as some, but a most valuable show flower.

5. Mr. J. Graham (Crombie).—A beautiful dark plum, curiously shaded with what one may almost call a rosy tint.

6. Rev. Joshua Dix (Downie, Laird, & Laing).—Dark plum, and shaded with lighter tint. An extra fine flower.

7. Maid of Bath (Hooper).—The best white out. Very smooth and clean, with a peculiar soft eye, which makes it very striking in a stand.

8. Yellow Model (Hooper).—An oldish flower, but very good. I have not noticed so much advance in this class as in others.

9. Rev. H. H. Dombrain (Downie, Laird, & Laing).—Modesty forbids! It is really a self, not at all shaded, of large size, and good substance.

YELLOW GROUNDS.

10. Aurita (Downie, Laird, & Laing).—Deep, rich, golden yellow ground; the shield somewhat large, the eye large and distinct. An extra fine flower.

11. C. W. R. Ramsay (McFarlane).—Rich gold ground; shield somewhat small; bright bronzy purple belt. A fine flower.

12. Francis Low (Downie, Laird, & Laing).—One of the very smoothest flowers out. Colour deep yellow; shield large; belting light maroon. Very fine.

13. General Young (Pollock).—Deep golden yellow ground, large shield, light purplish belt. An extra fine flower.

14. Prince Charlie (Downie, Laird, & Laing).—Bright yellow; eye large and striking. A bold-looking flower of a first-rate properties.

15. Mrs. Downie (Downie, Laird, & Laing).—It would be an ungracious thing to call a flower of second-rate qualities after one's wife; and this is certainly first-rate. Deep, rich gold, large shield, bronzy purple belt, and good solid eye.

16. Mr. R. Masson (Downie, Laird, & Laing).—Yellow ground, small shield, purple belt.

17. Roland (Stenhouse).—Yellow ground, belted with light purple.

18. Saturn. —Yellow ground; purple belt. A very fine flower.

WHITE GROUNDS.

19. Duchess of Hamilton (Downie, Laird, & Laing).—White ground, with rich purple belt. A fine bold-looking flower.

20. Isa Craig (Downie, Laird, & Laing).—White ground, slightly sulphury at first, but bleaching white; deep blue belt. Of good substance and form.

21. Lady Lucy Duudas (Downie, Laird, & Laing).—This is the flower of which I ventured to say it approached as near perfection as possible. Shield small, but clear white; deep maroon belt. An extra fine show flower.

22. Mrs. Laird (Downie, Laird, & Laing).—White ground, with a broad belt, of shining maroon colour; good eye, and very smooth.

23. Seraph (Dodson & Co.).—A bold, fine-looking flower. Good white ground, dark purple belt, and good bloom, ex.

24. Duchess of Kent.—White not very clear. Rather creamy, very large. Comes in very early; not quite so stout as many, but an excellent flower.

There are many others, doubtless nearly if not quite as good as these, but these seemed to strike my fancy; and I hardly think that people will be led much astray by them.—D., Deal.

DIAL OF FLOWERS.—In addition to the list we published last week there are the following mentioned by Mr. Forster, in his "Encyclopedia of Natural Phenomena:"—"The synergies

plants exhibit the most regular diurnal periods; the *Apargia autumnalis*, for example, opens its flowers at seven, and shuts them at three; the *A. hispida* opens at four, and shuts at three; the *Hypochaeris radicata* also closes at three; the *Hieracium pilosella* at half-past two; the *Tragopogon porrifolius*, and *T. pratensis* close exactly at noon."

THE EFFECTS OF LAST WINTER UPON PLANTS IN ENGLAND.

(Continued from page 156.)

THE following is from the Rev. Edward Simons, Ovington, near Watton, Norfolk:—

Aucuba japonica.—Killed to the ground.

Keria japonica.—Killed to the ground.

Ephedra distachya.—Killed to the ground; a part seems to be altogether killed. *E. monostachya* unhurt; being, I believe, a native of Siberia, it must have felt at home—it was covered with snow.

Common Laurel.—With one or two trifling exceptions killed almost to the ground.

Bay.—Killed to the ground.

Arbutus Unedo.—Killed to the ground; shooting weakly.

Broad-leaved *Phillyrea*.—Killed.

Broad-leaved *Alaternus*.—Killed.

Erica mediterranea.—Killed.

Cotoneaster rigidus seems to be killed, except, perhaps, where covered with snow.

Ulex europæus.—Apparently killed.

Yucca gloriosa.—Killed to the ground, though the leaves were bound together and the stems hay-banded; some suckers seem to be springing from the roots. *Y. filamentosa* apparently killed.

Buxus balearica.—Killed, except a few of the lower boughs, which were inlaid; these were covered with snow, and may perhaps live.

Peonia Moutan.—Killed to the ground, a few weak shoots springing from the bottom.

Coronilla emerus.—Killed.

Walnut.—The wood of last year, and, I think, of some preceding years, in some instances killed; shooting from the old wood—even from wood, perhaps, more than twenty years old.

Catalpa syriaca, and *Tulip Tree* (*Leriodendron tulipiferum*), seem to be in the same predicament with the Walnut. The *Tulip Tree* seems to have suffered more severely than either of the other two trees.

Laurustinus.—Killed to the ground; shooting weakly from the bottom.

Jasmine (*Jasminum officinale*), trained against a N.N.W. wall, almost killed. Some of the old wood seems to be alive, and it is making a few shoots.

Trumpet Honeysuckle.—Killed to the ground; shooting from bottom.

Quince more than forty years old, most of the branches, even of the very old branches, seem to be quite killed; a very few of the upper boughs are making wood and blossoming.

Common Cypress (*Cupressus sempervirens*), about forty years old, apparently killed. The bark when raised with a knife seems to show some signs of life, but I fear there is little doubt that the tree will die, if it is not already dead.

Hollies, common green, not variegated, all (about twelve), with, perhaps, one exception, more or less injured. Some have lost all their leaves; some a great part of their leaves; whole branches of some seem to be killed, and I am afraid that in more than one instance the whole tree is killed, at least to the ground.

Irish Ivy.—Killed in most instances very far back, but on being cut back it has shot from the old wood. In other instances it seems to be killed, at least to the ground.

Common Ivy.—Whole branches apparently killed.

Ruscus aculeatus.—Almost all the leaves and stalks killed. The buds of the present year are appearing above ground.

Ruscus racemosus.—In the same predicament.

Daphne laureola.—Very much cut.

Daphne pontica.—Not much hurt.

Common Broom (*Spartium scoparium*), much cut; in some instances apparently quite killed.

Many of the Oaks, especially in one part of the parish, seem to be as much hurt as the Walnut—that is to say, the wood of the last year, and perhaps, in some instances, older wood, is

killed; but shoots are breaking from the old wood, which is not killed.

The ground in this neighbourhood was covered with snow to the depth of more than 9 inches, so that the herbaceous plants which were in the open ground and the kitchen-garden crop have not suffered much. The Broccoli being laid down, suffered very little injury; but the Savoys, Brussels Sprouts, and Scotch Kale, not being laid down, were very much hurt. The Walcheren Cauliflower (Broccoli?) and *White Cape Broccoli* pricked out in nursery-beds were killed, though protected with mats, and well covered with snow. Some of the *Purple Cape Broccoli* escaped serious injury. Spinach, Lettuces, Parsley, sweet herbs, including Sage, have taken but little harm, and in this respect alone we seem to have had the advantage of Mr. Robson.

This part of the country is flat, or, rather, slightly undulated; it is not bleak, there being still a good many trees in the hedges, though but few large ones. My garden is well sheltered. I think this place may be about 150 feet above the level of the sea; this is, however, only a rough guess, and it is, I suppose, about twenty-five miles in a straight line from the nearest sea.

On the morning of the 25th of December last the index of my self-registering thermometer stood at -3° (or 35° below freezing), but as it was hung against a N.N.W. wall 5 feet 6 inches from the ground, sheltered by eaves 12 feet above the thermometer, and projecting more than a foot, we may fairly conclude that had the thermometer been placed upon the grass in an open situation it would have indicated a lower temperature. This place is rather more than a degree, perhaps $1^{\circ} 10'$ north of London.

I ought to have said that the Portugal Laurels have not suffered more than the Hollies, nor, indeed, so much.

Privets.—Many totally destroyed, others much cut.

Magnolias, on south wall.—Dead.

Evergreen Oaks, of sixty years of age, completely browned, and just beginning to shoot.

Araucaria imbricata.—Dead.

Cedrus deodara leaders.—Dead and otherwise much injured.

Common Laurel.—Many killed to the ground.

Portugal Laurel.—Ditto.

Aucuba japonica.—Ditto.

Hollies.—Many killed, others much injured, and the growth of last year destroyed.

Box, Yew, *Rhododendrons*, *Arbor Vitæ*.—Uninjured; but no bloom has come to maturity on the *Rhododendrons*.

Many standard Roses dead, even the stocks being destroyed.

The situation is high above Derby and the Derwent.—A CONSTANT READER.

CULTURE OF THE GRAPE VINE.

(Continued from page 218.)

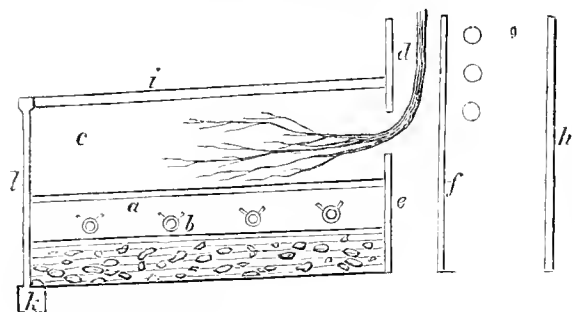
VINES IN THE STOVE.

THE Grape may be grown exceedingly well in conjunction with Pine Apples, and what are generally termed stove plants. In such houses the heat is generally high, and, consequently, the tenderer kinds of Grapes may with advantage be cultivated. The sorts, then, that I would grow in a stove are Muscat of Alexandria, Canon Hall Muscat, Golden Hamburgh, Charlesworth's Tokay, Dutch Sweetwater, and Bowood Muscat. These are light-coloured Grapes. In dark-coloured I would plant Muscat Hamburgh, Black Hamburgh, Lombardy, Black Damascus, Lady Down's, and Black Barbarossa. The white, grizzled, and black Frontignans are excellent Grapes, and where the stove or stoves are large would be an acquisition. West's St. Peter's is a good late kind, but is more suitable for a vinery. In places where there is no vinery especially devoted for an early crop it would be desirable to plant a few Vines that would ripen earlier than the above kinds. These would consist of Royal Muscadine, and Early Black July. By this arrangement Grapes may be had in the stove from June to the end of the year. The late kinds, Black Barbarossa, and Lady Down's would keep the latest. There are two points in the culture of the Vine in a stove that are somewhat difficult to overcome. The first is the application of heat to the roots so as to obtain root action simultaneously with top progress; and the other the necessary rest after the fruit and wood are ripened. By a little

skilful management both these difficulties may be successfully obviated.

Supposing that the stove to grow Pines, or plants, has to be put up, and expense no object, then contrive the building so that there shall be a narrow border inside between the hot-water pipes and the outer wall. This outer wall to be so built that there shall be arched openings opposite every Vine, and to make more sure let the outer border itself be placed upon an open chamber, that chamber to be filled with air warmed with hot-water pipes with shallow open troughs fixed on them. At the time of commencing to force the Vines these pipes should be gently heated and the troughs filled with water; the chamber under the roots would then be filled with a moist, agreeable temperature, which would excite the roots into growth simultaneously with the buds; and to make doubly sure, the open border should be protected from frost, snow, and heavy rains by a waterproof covering of either boards or oiled canvass nailed to frames. This sort of shelter is much superior and neater than a heap of littery dung or even dried leaves, for these materials soon become cold and wet, and, consequently, ungenial, if not injurious to the roots. The accompanying section will explain the mode much more plainly than mere description.

No. 1.—Section of Vine-border with border inside and a heated chamber under the border outside.

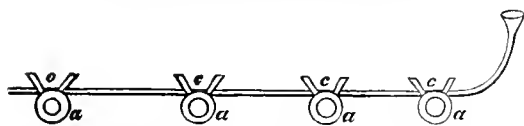


- a Heated chamber.
- b Pipes in the same with troughs on them.
- c Outer border.
- d Inner border.
- e Front wall.
- f Inside wall of inside border.
- g Walk and pipes to heat the house.
- h Wall of pit for Pines or plants.
- i Shelter for border outside.
- k Main drain.
- l Drain to carry off the water from the covering.

The water on the pipes inside the heated chamber might be easily supplied by a small lead pipe connected with them from the inside of the house, and pierced with a hole opposite each trough.

Section No. 2 explains this part.

No. 2.—Section showing the mode of filling the troughs in the heated chamber under the Vine-border of a stove.



- a a a Large pipes.
- b Small lead pipe with a hole drilled opposite each trough.
- c c c Troughs.

It is evident when all these parts are in working-order the air inside the chamber will be warm and moist, and as heat rises the border above will be gently heated also. The roof of the chamber should be formed with flags resting on bricks, and the pipes might be conveniently placed between each row of bricks. The hot-water pipes in the chamber can be supplied and heated by being connected with the boiler that heats the pipes inside the house.

The second difficulty—namely, the giving the Vines the proper rest and at the same time keeping up a proper temperature for Pines and stove plants, is more easily overcome than the first—that of inducing root action early in the spring. There are two ways of accomplishing this: the best is the having a double front—that is, a range of frames set upright on the

front wall (e, section 1), and a second range to rest upon the inner wall (f, section 1). Now, when the Pines are growing the inner range is taken away and may be made useful for other purposes during the summer. After the fruit is all gathered and the wood thoroughly ripened, then the Vines should be taken down from the rafters, pruned, and laid down close to the outer range of frames, and when completed the inner range should be fixed up and made air-tight. The Vines are then, as it were, in a long box, which may be kept as cool as you like by opening the front lights every day and night also in mild weather. The house, of course, will be heated as usual for its permanent occupants.

The second mode is managed thus: The front lights are made moveable, and when the Vines are pruned, they are laid down close to the glass as in the first manner; but then the lights are removed and brought inside, set up on the inner wall and made air-tight by placing a shelf on the top of them, that shelf being so broad as to reach to the bottom of the roof lights. This plan answers very well, but not quite so well as the first. On the shelf, any low-growing plants may be placed, thus giving more room to the rest. I have placed on it dwarf Lycopodiums, Achimenes, and Gloxinias when at rest, and many other similar things that required a medium heat.

Planting.—The best time to plant Vines in a stove is when the temperature of that house is the lowest. That takes place generally in winter: therefore I recommend the planting to be done any time in February, the earlier part of the month will be best. The object aimed at is a gradual starting into growth. There is nothing gained by over-forcing young Vines as soon as they are planted; indeed, if the double-front-system is adopted at first (and I know no reason why it should not) the young Vines might be planted as early as New Year's-day, and the roots gradually induced to grow whilst the shoots are cool. The same method of spreading out the roots in a fan-like fashion should be adopted as much as possible. I could never endure the plans of putting Vines in baskets or old long boxes, and starting them into growth before planting finally out. The roots in such cases must, more or less, be cramped and cabined, and consequently cannot spread out evenly throughout the border. Besides, in such cases, there is always some danger of breaking stems or bruising leaves.

Pruning.—On this head I need only say that the best mode is the spur system, the same as I described for greenhouse Vines.

The *Summer Treatment* consists in the usual stopping of laterals, setting the shy sorts, such as Canon Hall Muscat, Black Damascus, and Muscats of sorts with the pollen of more free-setting sorts. The Black Hamburgh, for instance, has abundance of pollen, and as it is a free bearer there are generally a few bunches to spare for this purpose. The flowers of these shy setters, should be examined previously to applying the pollen, and care taken that the lids that cover the stigmas are fallen; for if they are still adherent, applying the pollen will be useless. A little care at the proper time on this point will almost be certain to cause plenty of berries to set, even on the shiest kinds.—T. APPLEBY.

(To be continued.)

REPORT ON THE GARDEN PEAS,

GROWN AT CHISWICK DURING 1860.

By ROBERT HOOG, LL.D., F.R.H.S., Secretary to the Fruit Committee.

(Continued from page 219.)

VIII. GREEN KNIGHT'S PEAS.

Ripe seed green and wrinkled. Foliage dark green and much blotched.

52. **Advancer** TURNER.

The plant is a free grower, of robust habit, and about 2 feet high, with dark green and blotched foliage. The stem is rather succulent and sometimes branching, producing twelve to eighteen pods, which are generally in pairs and contain eight very large Peas, which are closely compressed. The ripe seed is green and wrinkled.

Sown February 19th; bloomed May 30th; slatted June 8th; and ready to gather July 3rd.

This is one of the most valuable acquisitions that has been obtained of late years. It is in fact a green Wrinkled Marrow, as early as Early Emperor. It is remarkably productive, the

pod fill well, even in such a bad season as the last, and when cooked the Peas are most delicious. It was raised by Dr. Maclean, of Colchester.

53. MignonTURNER.

The plant is very dwarf, about 15 inches or 18 inches high, with dark green and blotched foliage. The pods are produced in pairs at almost every joint, and are from ten to twelve on a plant. They contain from six to seven Peas in each. The ripe seed is green and wrinkled.

Sown February 19th; bloomed May 28th; slatted June 12th; and ready to gather June 3rd.

This is a very abundant bearer; but the pods are small, and the Peas soon become too old for use. It is remarkably early, coming in at the same time, or rather before, Early Emperor. It seems well adapted for forcing, and will be the first Wrinkled Marrow Pea that could be employed for that purpose.

54. Champion of EnglandJAMES VEITCH, JUN.

The plant is of a strong and luxuriant habit of growth, with a stem from 6 feet to 7 feet high, which is generally simple, but occasionally branched, and having light green foliage which is scarcely blotched. The pods are from twelve to eighteen on a plant, and are generally single, but frequently in pairs, and contain seven to nine very large Peas closely compressed. Ripe seed pale green and wrinkled.

Sown February 19th; bloomed June 6th; slatted June 23rd; and ready to gather July 10th.

This valuable Pea is now too well known to require any commendatory remarks. It and Fairhead's Surprise originated in the same pod, the latter being a round and the Champion of England a wrinkled-seeded variety. When sown both varieties preserved their distinctive characters.

55. Hairs' Dwarf MammothNORLE, COOPER, & BOLTON.

The plant is of a stout and robust habit, with a succulent stem 2½ feet to 3 feet high, which is sometimes branching. The foliage is dark green and blotched. The pods are produced in pairs, and are from twelve to sixteen on a plant. They contain seven large closely compressed Peas. The ripe seed is green and wrinkled.

Sown February 19th; bloomed May 28th; slatted June 13th; and fit for use July 10th.

This is an excellent Dwarf Green Marrow, an improvement on Dwarf Green Knight's, than which it has a much larger pod, and is about a fortnight earlier. It is an abundant bearer, and seems of a hardier constitution than others of the same race.

56. EpicureanTURNER.

The plant is a free grower, with a succulent stem 2 feet high, and dark green and blotched foliage. The stem is occasionally branched, and produces from twelve to sixteen pods, which are generally in pairs, and contain seven Peas, of which about five come to maturity. The ripe seed is green and wrinkled.

Sown February 19th; bloomed May 30th; slatted June 13th; and fit for use July 12th.

This is a tender variety, and seemed to suffer from the past cold season, for it filled slowly and unequally, and the generality of the pods were much distorted. Although it bloomed on the same day as Advancer, it took nine days longer than that variety to fully develop its pods. This was raised by Dr. Maclean.

57. Sea GreenTURNER.

The habit of this variety is similar to that of Advancer and Epicurean, but the foliage is of a light green colour; except in this respect, it does not differ materially from Epicurean, and it comes into use at the same time. It is another of Dr. Maclean's seedlings, but may readily be dispensed with.

58. ClimaxNOBLE, COOPER, & BOLTON.

SYN: Fairhead's Excelsior...SUTTON & SONS.

Napoléon

The plant is of strong and robust habit, 3 feet to 3½ feet high, unbranched. Foliage rather light green and blotched. The pods, which are from thirteen to nineteen on a plant, generally in pairs, fill very badly, rarely containing more than four or six fully developed Peas, the others being abortive. Ripe seed green and wrinkled.

Sown February 19th; bloomed May 26th; slatted June 13th; ready for use July 12th.

This produces a great many pods, but they are badly filled. When first introduced it was considered useful on account of its earliness; but now it is not worth growing.

59. Essex RivalTURNER.

This also in its habit of growth bears considerable resemblance to Advancer and Epicurean, but is more hardy than the latter. It is ten days later than Advancer, and a day or two later than Epicurean, and is a superior variety to Climax, which ripens at the same time. As a dwarf second early Green Wrinkled Pea it is an acquisition, and ought to be retained in cultivation. It is one of Dr. Maclean's seedlings.

60. Lord RaglanNOBLE, COOPER, & BOLTON.

Plant with a robust habit of growth, 3 feet high, and not branching. Foliage dark green and blotched. The pods are produced in pairs, from twelve to sixteen on a plant, and contain from five to seven Peas in each. The ripe seed is green and wrinkled.

Sown February 19th; bloomed June 10th; slatted June 21st; and ready to gather July 12th.

This is of the same race as Hairs' Dwarf Mammoth and Veitch's Perfection, but it is later by two or three days than the former, and three or four days earlier than the latter. It does not fill so well as either of these varieties.

(To be continued.)

THE CAPE OF GOOD HOPE VINEYARDS AND THE VINE DISEASE.

(Official Report.)

IN pursuance of instructions we left Cape Town on the 2nd of December on a tour of inspection of the vineyards affected with the prevalent disease, Oidium Tuckeri, and to afford to the farmers and others interested every information on the Vine disease, its progress and effect on the vintage and health of the Vines unless checked by the known remedy, and to urge the immediate application of flowers of sulphur as the remedy which had been effectual in Europe to secure a vintage from diseased Vines.

Monday, 3rd.—Examined some of the small vineyards about Paarl; found the disease quite general in a more or less advanced state, according to the dryness of the soil or exposure of the Vines. The Steen Grape in all places most severely attacked. The Lachrymæ Christi is also severely attacked, and the disease very fully developed on that variety. Sulphur as a cure, and its application very well understood here. It has been applied in several places with good effect. Dusting with dry lime, fumigation by burning sulphur, wood, rags, &c., under the plants have also been tried, and were being tried, but without any apparent success. Pointed out that none of these things had ever been found really beneficial, and that it was better to adopt the remedy recommended by the Commission, and which had been found successful elsewhere and in other countries. The vineyards on the upper side of the village have the disease in a more advanced state than on the lower side, indicating that the disease attacked first the higher and more exposed vineyards. The vineyards on the lower side of the village slope more or less abruptly from the houses to the river. The disease appears generally on the higher parts of the slope, while on the lower grounds it occurs here and there only upon a plant. The same features occurred last year, the disease being almost confined to the high grounds. It will be seen by perusal of what follows that the impression is general amongst the Vine growers that the disease first occurs on the Grapes on the high, dry ground of the vineyard. All the Vines affected with disease last year are most virulently attacked this year. Mr. Proctor, M.L.A., tried a solution we recommended last year. The Vines experimented on, Mr. Proctor thinks, are less affected this year than the others not operated on close by.

At 8 A.M. left the Paarl for Great Drakenstein, intending to return to the Paarl on Wednesday, the 5th, for the purpose of attending a meeting of the district Agricultural Society, called to take into consideration the state of the vineyards, and the cure of the disease affecting the Vines. Keeping towards the left in ascending the valley, the place of Mr. P. Vos was first visited, a farm containing about 50,000 Vines. Several kinds grown, but mostly Green Grape. The disease general, but most intense on the Lachrymæ Christi. A few plants diseased last year. No remedy applied as yet. Recommended the immediate application of sulphur, and exhibited the methods of applying it with the sulphurators. Soil of a loose sandy nature. Situation open and well ventilated. It would be both tedious and useless to de-

scribe all the places inspected: therefore, those only which may be considered exceptional in circumstances will be described in this report. The preceding and first following places may be taken as types of the others, or the conditions we found them in. Many of those whose places we visited were quite intelligent on the disease and its cure, and the various experiments that have been tried. Others were ignorant of the existence of the disease in their vineyards even till pointed out to them.

Messrs. Duprees, about 130,000 Vines. Steen Grape slightly affected with the disease. None last year. The Vines in this place look very vigorous. Recommended the remedy, &c.

Mr. Van der Spuy's, about 40,000 Vines. Disease appearing in the Green Grape, but not general. Vines look healthy. Mr. Van der Spuy represents he could not use any remedy, were his Vines ever so bad, for want of hands to apply it. Recommended the remedy, and exhibited the apparatus and mode of applying the sulphur, however.

Mr. Daniel Marais, about 60,000 Vines, mostly Steen and Green Grape. The disease quite general on the Steen Grape; a few plants were affected last year, but no remedy applied. Experiments have been made this year by burning roll sulphur under the shoots, but without any success, except in destroying some of the foliage. Mr. Marais is to proceed at once to apply the proper remedy. Soil sandy, with apparently plenty of moisture. Situation low, and sheltered with trees.

Mr. D. Ehrh's, containing 150,000 Vines. Disease pretty general throughout the vineyard; most severe on the Steen Grape growing on the drier parts. No remedy applied as yet. Recommended the immediate application of sulphur. Soil and situation very similar to Mr. D. Marais' place.

Mr. G. S. Marais, Watergate, about 100,000 Vines, nearly all Steen and Green Grape. Disease general; most severe on the Steen. Fumigation with roll sulphur has been tried, but without any apparent success. Described the proper remedy and its application. Soil sandy.

Called at the place of Mr. D. Beyers (to whom we had a letter of introduction). Did not find him at home. Was informed by two young men we met that disease of any kind did not exist there. This is a fine estate. We regret not having seen the vineyard, where, we were afterwards assured, the disease does exist.

Mr. W. Haupt, M.L.A., about 150,000 Vines. Examined the whole of the vineyards, and found the disease general on all kinds of ground, but most intense and most fully developed on the Steen Grape growing on the high dry ground. No remedy applied as yet, but a quantity of sulphur has just arrived, and two of the sulphurators we brought from town are left for commencing to-morrow. Found his Excellency the Governor and suite here, *en route* to the frontier. His Excellency expressed much anxiety regarding the spread of the disease, and hoped the farmers would, without delay, proceed to use effectively the remedy recommended, as the only one found effectual in Europe in saving the vintage.

This is a fine, well-timbered estate, with some magnificent Oaks surrounding the mansion. The orchards and the orangeries are extensive; but the Peach, Apricot, and Nectarine crop here is an entire failure this season, as is the case in almost every place visited since leaving Cape Town. (There seems to be a general impression that the Peach, Nectarine, Apricot, and Apple trees are affected with the same disease as the Vine; such is not the case, however. We may make a few observations on this head at the end of our report.)

Mr. A. de Villiers, Silvermine, where we were to remain overnight. This is a fine estate, occupying an elevated site but protected from violent winds by trees and rising ground. The soil is of a more retentive nature than that of any farm visited during the day. In appearance and constituents it much resembles the soils in some of the higher Constantia vineyards, especially a large tract of land behind the mansion newly broken up and intended for the Pontac Grape Vine after a grain crop, 100,000 Vines. The disease has made its appearance slightly on most of the Vines, except the Haanepoot. No remedy applied as yet, but a quantity of flowers of sulphur has been procured, and the sulphuring commences to-morrow. The energy and intelligence of the proprietor is a guarantee that the work will be effectually done. No disease last year. Left one of our sulphurators here. The Peach and Apricot crop here, as elsewhere, is a failure.

December 4.—Left the hospitable residence of Mr. de Villiers and proceeded to the place of Messrs. Russouw & Retief, Neuwe-

dorp. 100,000 Vines. Disease general here on all sorts grown, most intense on the Green Grape. 10,000 Vines have already been sulphured, for which 50 lbs. of sulphur have been used. Various modes of applying the sulphur have been tried, including the sulphurator recommended by the Commission, which Mr. Retief complains gets clogged up with the sulphur when the Vines are wet. As might be expected, much variety of opinion exists regarding the propriety of watering the Vines previous to applying the sulphur. It may be found necessary in practice; but in no way can the water combine in action with sulphur on the disease. We will make a few observations on this head at the end of our report. Disease was rather prevalent in this vineyard last year, and a considerable portion of the crop was lost by "rust." The crop this year is abundant, and the Vines well aired; indeed, we are assured, the wind blows with great violence from the prevailing quarter. The proprietors are to proceed vigorously with the application of sulphur. Here is the largest Oak we have seen in South Africa; at 2 feet from the ground it cannot measure less than 13 feet in diameter, with limbs and head in proportion. Several others have been cut down in the neighbourhood; the stump of one remaining about 20 inches above the surface, measures three (3) good paces across, or about 11 feet in diameter.

Mr. Lodewyk Brink, Rustenvrede, about 90,000 Vines. This is a very fertile place, and in good years produces 180 leaguers of wine.* The disease was found to have attacked the Grapes about three weeks ago. On some of the sorts sulphur has been vigorously applied, and with good effect. The Frontignac, which the proprietor assured us were much affected fourteen days ago, are now quite free from mildew. Twenty thousand Vines of all kinds have been sulphured, and 150 lbs. of sulphur used. Disease attacked this vineyard last year, and the proprietor reaped nothing from a mixed lot of 15,000 Muscadels, Haanepoots, and Lachrymæ Christis. The damp part of the vineyard was the least affected last year, the same feature occurs this. The Steen is the most severely attacked and has the disease most fully developed. Mr. Brink is under the impression that irrigation is beneficial in arresting the spread of the disease, but he is prepared to proceed vigorously with the application of sulphur.

The adjoining farms of Messrs. G. de Wet and Hugo, of about 80,000 Vines each, are both affected with the scourge. Sulphur is being applied; already about 20,000 plants have been sulphured with the apparatus recommended by the Commission. In both of these vineyards the higher and driest parts were first affected, and the disease is most intense there now.

(To be continued.)

CULTURE OF SORGHUM,

AND THE MANUFACTURE OF SYRUP AND SUGAR THEREFROM.

(Continued from page 224.)

Mode of Manufacture.—Believing that in the vast majority of cases, the manufacture of Sorghum syrup and sugar will be carried on in small establishments, I shall more particularly describe the process suitable for such. The first consideration is a good mill. I shall not speak of the wooden mill, as such are rapidly growing out of date, and will soon be numbered amongst the things of "bygone days." A good substantial one-horse iron mill will grind in twelve hours enough juice to make forty or fifty gallons of syrup. Taking this for a standpoint, the operator can be guided in his purchase by the contemplated extent of his establishment. So far as I can learn, Hedges' mill is the most reliable mill in the market at present, though others may exist of equal merit.

The mills put up by Douglas Brothers, of Ohio, have many of them proved failures. My own broke "all to smash" before I had run it a month, and I was obliged to borrow a neighbour's (of a different make) to finish up. Rollers, shafts, boxing, all went. An examination of the iron by competent judges resulted in pronouncing it completely worthless. It might have happened accidentally that the whole mill should have been composed of such stuff. More or less fault has been found by all who have used them in this county.

I do not wish to injure the sale of this mill, but such misfortunes are exceedingly vexatious, and cause the unhappy owners much loss, occurring as they do when every day is pre-

* A *leaguer*, a Cingalese measure, containing 150 gallons.

cious, and a foundry many miles away. Doubtless there will be reliable mills put up in our own State during the coming season amply sufficient to supply all wants in that line.

The mill should be placed, if possible, a little higher than the boilers, in order that the juice may be conveyed thither in a spout, thereby saving much labour.

Method of Evaporating, Clarifying Agents.—Of all the boilers yet in use, I unhesitatingly prefer Cook's evaporator. I do not believe that quite so beautiful an article of syrup can be made with it as with the common pan and kettle; yet as I bought mine last fall when the cane was dead ripe, and going down hill, I cannot vouch with much certainty as to that. This much I do know (and "what I know I know, I know") that an article can be made with it, which sold here faster than it could be manufactured at 50 cents per gallon, wholesale, and pronounced by all who used it fully equal to golden syrup; and even after the cane was badly frost-bitten the syrup outsold the best plantation molasses. But still my premium syrup (I took the first in our county, and ditto in Macoupin county, over fourteen competitors) was made in a twenty-gallon iron kettle on the old plan. I don't desire any better. I also made my sugar in the same utensil. The chief advantages of the evaporator are two—viz., first, the rapidity with which evaporation is carried on. Forty gallons of syrup are easily made per day with No. 2, if good, dry wood is used. Wood should be provided this winter by all who contemplate using that machine next fall. Secondly, the removal of any necessity for using clarifying agents; the heat and skimmer completely clarify the juice. This machine is liable to one objection—it requires considerable skill to use it successfully. Of five within my knowledge but one was run according to the design of the inventor. Three were used by plugging up the outlet for the escape of the syrup, and boiling as in common sheet-iron pans; a fourth required two men to skim and one to stand at the last channel, ladle in hand, to keep the syrup in continual motion so as to prevent burning; the fifth (belonging to your humble servant) seemed likely to meet the same fate for a day or two, but finally succeeded in managing it, so that one hand could bring sap, fire up, and skim, with perfect ease. The directions seem to us Egyptians quite obscure. One experienced hand can show a tyro more in twenty minutes than he can learn by himself in a week, or even a month. I would strongly advise any who intend buying to secure the instruction of some one who has successfully used the machine. The number of evaporators may be increased as the size of the crusher demands.

If pans are used, make them of galvanised sheet-iron, from 7 feet to 10 feet long. Turn up the sides and ends of the sheets about 2 inches, and finish by nailing them to a solid plank 10 inches high, so as to form an oblong water-tight box with iron bottom. As many as you wish may be set in furnaces, the horizontal flues of which should meet in one perpendicular chimney. I hardly need state that the whole syrup-boiling apparatus should be enclosed so as to be protected from the weather. Even the wind alone retards greatly the evaporation. The juice should be clarified in these, and afterwards boiled down until nearly done, when it should be removed, and the operation slowly finished in a cast-iron kettle. Not that I think cast-iron ones preferable to any other metal. A silver one would doubtless be better; but as such would be considered somewhat extravagant, I presume we must be content for a while with the humbler metal. The reason I prefer to finish in a kettle is this: When the syrup is completely done, it can be ladled out without the risk of scorching, which is so imminent in using the thin, flat pan.

Clarifying Agents.—Of these there are several. Lime water made from fresh lime is about as good as any. Our finest syrup was cleared with some refuse saleratus which had been thrown away by a merchant here as worthless. It did not injure the colour in the least. Carbonate of soda answers very well, but colours the syrup somewhat. Sugar of lead is a splendid clarifier but its poisonous qualities render it unsafe to use. The best purifiers, however, as remarked before, are rapid boiling and the skimmer. And it is by bringing these two agents into easy play that Cook's Evaporator stands pre-eminent. Whatever clarifiers are used their application should be continued until almost the last moment of boiling. I found that a small quantity from time to time thrown in even after the syrup began to thicken would throw up a white wax. I would like to remark, that perfect cleanliness is no injury in any stage of the operation.

Manufacture of Sugar.—Notwithstanding the glorious anti-

pations indulged in by the community in respect to this branch of the business, but few have succeeded in securing crystallisation. And those who did succeed, seemed to have done so more by accident than by the application of any rule or principle. Mr. Cook states that he made 400 pounds during the fall of 1859 and intended to make a ton the next season. Whether said ton has forthcome I do not know. Does anybody? Whatever he has done, the vast majority have utterly failed in their attempts. Yet the sugar is there, and can't we get it out? Let me give my experience, and some of the causes which I believe produce these failures.

1st. Too little attention has been paid to the period in which the juice is in its greatest perfection; this lasts but about four or five days, from the time the seed is fully in the dough until it is nearly ripe, as I have before stated. The time may extend until the full maturity of the seed, but such has not been my experience.

2nd. Cutting the cane too long before using. To insure granulation it should be made up the very day it is cut. Moreover, the juice should be boiled down as soon as expressed. In the south they do not allow twenty minutes to elapse, if they can help it, until the cane is in the boiling-pans.

3rd. Using too much of the upper part of stalk. At least four joints should be rejected, as the saccharine matter is quite feeble, and there seems to be an acid existing, which, if allowed to mingle with the juice of the lower portion, destroys the power of crystallisation.

The specimens made by myself were manipulated with reference to all these points, and granulation followed every attempt. The experiments were necessarily conducted on a small scale, as I did not wish to incur any risk by branching out until satisfied of meeting with uninterrupted success. I am so well convinced by the results, that I shall prepare a sugar-room the coming season for more extended operations. The syrup when intended for graining should be boiled down until it reaches a temperature of 228° or 230° Fahr. Steam makes an excellent thermometer. When it escapes in little puffs as in boiling mush, the syrup is ready for cooling, which should be done immediately by pouring it into shallow pans, and stirring it until it cools somewhat. It should not lie more than 1½ inch or 2 inches deep. If it is a successful boil it will begin to grain in a day or two. After a week it must be drained, which is done most easily by hanging it up in very porous bags, made of loose cotton cloth.

It is refined just as maple sugar, or that from the south is treated. Believing we had better catch the fish before we eat them, I shall not consume your time and patience by entering into that department of the business at present. When we successfully produce the raw sugar, there will be plenty of time to discuss this question.

Profits.—These vary from 50 dols. minus per acre, to 100 dols. plus, just as the business is managed. One large mill in an adjoining county broke up its owners; twenty-five acres of cane remained uncut in their field, and the quality of syrup was so poor that they could not sell it until it was refined. While others on a small scale realised quite a per cent. on the outlay and labour. The result of my own was about thus:—When the mill ran steadily without breaking, the nett profits were 8,00 dols. per day of ten hours. But as I have before mentioned, it was exceedingly poor, so that by constant delay and having hired help whose wages were running on, working or idle, I realised much less than I ought. I shall look out for such things hereafter, and have a mill on which I can depend. I paid 115 dols. for Cook's Evaporator, and a Douglas mill, including the freight (evaporator 47,56 dols. including freight, mill 68 dols. including ditto), you can easily calculate the profits on the investment had there been no time lost. The season ought to commence on the 1st of September at least, and continue for two months, or even longer if the cane is properly taken care of.

I do not think, however, that large expenditures will pay so well. We do not know enough about the business as yet to render it safe to invest to any great amount. Still I most sincerely hope that all such may prove successful another year, and that the enterprise manifested by their proprietors may not go unrewarded. That we can supply our own State with syrup, and sugar too, I have no doubt whatever. All we need is more experience. Should I discover any improvement in the business, no matter how small, I will be sure to add the discovery to the stock of knowledge which the community now possess.

I would remark here, although not in its proper place, that

my horses, cows, and hogs have all this winter had access to the pile of bagasse, and they eat it greedily. My milch cow will not touch hay or Hungarian grass, and she is in as good order as it is possible for a milch cow to be. My horses require very little fodder, and even the pigs chew away with commendable zeal.—E. F. NEWBERRY, *Montgomery Co., Ills.*—(*Prairie Farmer.*)

AUSTRALIAN CRESS.—It can be most strongly recommended as an improvement on the old-fashioned kind, and it fast must supersede it, being superior in appearance and flavour, and possessing also the great advantage of bearing many cuttings without growing coarse. Mine in an orchard-house has already been cut four or five times.—W. X. W.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 212.)

VASES FOR THE DINNER TABLE.

THE mouth of the vase should be covered with a wire frame, or filled with wet sand as usual. If the vase is Parian the latter mode is very far the best, and the sand can be smoothed down with a spoon.

The flowers just now will be, perhaps, Verbenas or small crimson Roses, white Syringa, or some clear white substitute, pale blue Hyacinths, or Nemophila, and a profusion of green as usual. White Geraniums look very pretty; and so do long trailing sprays of the Ivy-leaved Geranium drooping from the vase.

Géant des Batailles Rose matches extremely well with the small crimson Rose, and is larger and more solid for the central flower. As a general rule, the centre and the edge should repeat each other. One or three Roses look well in the centre, and Rose leaves round them, and Roses again all round the edge, arranged somewhat in the form of a Shamrock, have a good effect; or a fleur-de-lis is excessively pretty as the device for both.

To manage this device, it is a good plan, having drawn the pattern on a card, to cut it sharply over with a penknife, so as to take out the pattern, making the card itself carefully the size and shape of the section of the circle you intend the fleur-de-lis to fill. For instance, if you wish for six fleurs-de-lis, or for eight, make it a sixth or an eighth of the whole; and then, placing the card on the sand, make the flowers destined to form the pattern exactly fit into its shape.

It is so much a work of touch and hand which is the better plan—to form a ground work, occupying the places for patterns with the cut-out card flowers, or to put in first the pattern of flowers and afterwards to do the

ground. I incline much to leaving spaces only, arranging first the ground.

A scarlet Geranium ground is very pretty, with white Geranium for filling in the patterns. A scarlet Cactus is then magnificent a little raised up for the centre flower; but the crimson Roses on a white ground, done in the fleur-de-lis or in threefold Shamrocks, are also very lovely and light up well.

Scarlet Anemones, again, and double crimson Tulips, represent Roses lastingly and effectively. With scarlet, yellow cannot possibly be used; but some white drooping flower; Clematis, for instance, must droop upon the edge. With crimson we may try if the palest Primrose is allowable; blue would be better, but Laburnum is so tempting. There should be little green visible except just at the edge.

My readers understand, of course, that when I name many varying flowers, often belonging to different seasons quite, I do so merely that they may, out of the numerous kinds there are, find some that will be likely at all times to suit them.

Now, various-coloured Roses are amongst the loveliest of flowers for June vases; but a month earlier Hyacinths, or even double Tulips, might look very beautiful; and later, Verbenas and Chrysanthemums are very pretty.

Carnations and Pinks are beautiful and very lasting flowers. I have seen exquisite pale rose-coloured Carnations blossoming in November—in fact, almost continuously from July to February, and they are sweet-scented and keep perfectly unfaded. Their only fault is the headache their scent occasions to some people.

Anemones are very lovely for a dinner table. They



blaze out in the brilliant light and really become a most striking spectacle. They must be allowed the benefit of full light for full half an hour before they are required to be in their expanded beauty. The bright scarlet, pale blue and pink, and blue shaded into white, are very lovely; and they should have, if possible, a soft, mossy kind of foliage. Ferns or Lycopodiums do with them well, their own leaves being far too rough in general, looking like a very untidy kind of Parsley.

Camellias are always beautiful beyond almost all other flowers, for any of the arrangements which require a certain massiveness and grandeur. The colours arranged in massive rings or points, look far better than when they are broken into patterns of a more fanciful description—indeed, that arrangement sometimes is rather resorted to in order to render choice, things that would in themselves be passed by unnoticed.

The accompanying illustration has a charming effect, from the blossoms that droop so gracefully.

The flowers that compose it are chiefly Orchids; but with Cyclamens and Passion-Flowers, and many pretty flowers of the bulb class, much the same effect of waxen blossoms and delicate light sprays of beautiful starry flowers may easily be produced.

VASE DESIGNS FOR A DINNER TABLE IN JUNE.

I have already given, I think, such very exact details as to frame work, mounting, making-up, &c., that now I shall simply name the flowers and describe the designs for a dinner-table set of vases. I shall give a whole set; but any one requiring merely two or three can very easily select some to suit the purpose and the flowers that can be employed. I will suppose that there are three large and twelve small vases to be filled with flowers, all Roses of varying kinds.

The centre *Géant des Batailles*, and white Moss or some other pure white Rose, long sprays of small, white-clustered Roses, and others of the lovely crimson *Pæstum* Rose, or some other of a like briary kind hanging over mingling with the white.

Pretty healthy foliage is far more important for this than flowers. Still some beautiful clusters might well be wired on stalks possessing better foliage than their own might be. Many of the very small briar Roses are so exquisitely lovely, that even the Wild Rose sprays would be far from out of place.

For the centre vase a pointed design, or a thick band of crimson and white alternately, would be very well, or a simply-mingled bouquet, with, in the former case, little foliage; in the latter, much. The two other centre vases should be in similar colours, and of a corresponding design, all points, all circles, or all grouped; but if crimson is the ruling colour in the centre piece, white should be so with them—or the reverse, if otherwise.

The side vases need not match in any way, though all should contain either white or crimson as one of their colours. Crimson delicately shaded into pink would be very beautiful, placed alternately with white shaded into rose. The various flowers must be chosen, however, with great precision, as so many, especially of the year-or-two-old Roses, have so heavy a tinge of bluish lilac.

In the centre of each side there might be a vase of the palest Tea Roses, arranged lightly amidst their foliage as for a drawing-room vase, and relieved by a border of the very palest pink. Of course, the vases down each side of the table must match; if the different centre is therefore used, the number of pairs of side vases must be uneven. Five pair, seven, or nine, being used according to the size of the table, and to the number of the party to be assembled at it.—E.

(To be continued.)

A SPECIAL MANURE, NOT PATENTED.—At the Woodbury ploughing match, Mr. John Daw told the following anecdote:—“Having drained a field where nothing had ever grown before,

I was standing near looking at a crop I had there, when a neighbouring farmer came up. We had one or two loose farmers in our neighbourhood; one of them, in fact, came from Woodbury [laughter]; but this is not the man I am speaking of. He came up and said to me:—“That is a bootiful crop! How did he get it, sir?” I replied, “Brains.” [Laughter.] “What! manure the field wi’ brains?” [More laughter.] “Yes.” [Renewed laughter.] He replied, “Goodness, yer honor, where did you get um?” [Roars of laughter.]

ROYAL HORTICULTURAL SOCIETY.

THE Fine Arts Committee of this Society met in the Council-room at South Kensington on Saturday afternoon, the 15th inst., His Royal Highness the Prince Consort, President, in the chair. There were also present the Lord Llanover; Sir Coutts Lindsay, Bart.; Mr. Henry Hope; Mr. Wentworth Dilke; Mr. Sidney Smirke, R.A.; and Mr. R. Westmacott, R.A.

The object of the Meeting was to make a communication to the sculptors of the country. The following is a list of the sculptors and gentlemen connected with that department of the Fine Arts who had been invited by the Committee to attend, almost the whole of whom were present—viz., Messrs. Baily, R.A.; Foley, R.A.; MacDowell, R.A.; Marshall, R.A.; Weekes, A.R.A.; Baron Marochetti, A.R.A.; Adams, Bacon, Behnes, Bell, J. Davis, E. Davis, Durham, Earle, Edwards, Hancock, Jones, Lough, Leigebild, Miller, Munro, Nicol, Noble, Physick, Papworth, Stephens, Theed, Thomas, Thornycroft, Thrupp, J. Westmacott, Woodington, and Woolmer.

An ordinary general Meeting for the election of Fellows was also held as above on Tuesday last, S. H. Godson, Esq., in the chair, when 145 new Fellows were balloted for and duly elected, including Lady Alvanley, the Bishop of Bath and Wells, Lord Amelius Beauchere, Viscount Chelsea, Viscountess Combermere, Lady Cremorne, Earl of Darley, Earl de Grey, Earl of Longford, Duke of Marlborough, Lady Otway, Lord George Quin, Viscountess Strangford, Earl of Besborough, Lady Chichester, Lord Craven, Lady Charlotte Denison, Lady Londesborough, Lady Magnay, Lord Methuen, Lady Louisa Mills, the Bishop of Oxford, Lady Price, Viscount Somerton, Lady Stirling, and Lady Wharnclyffe.

WORK FOR THE WEEK.

KITCHEN GARDEN.

ADVANTAGE to be taken of the first good shower of rain to plant out the main crops of Brussels Sprouts, Broccoli, Savoys, &c., until then they had better remain where they are. Recently transplanted plants to be kept constantly watered, and the ground about them to be occasionally stirred. *Broccoli*, as soon as the weather will permit plant out the main spring crops. *Carrots*, a little more seed may be sown to produce a later crop for drawing young. Loosen the earth between the main crops where it is baked down hard. *Califlowers*, some of the late sowing to be planted as soon as the weather will permit, or if the planting of them can be no longer postponed, they should be kept watered until they make fresh roots. *Celery*, no culinary vegetable demands larger supplies of water at this season than *Celery*, the first crops run in a short time if not well supplied with it, and the later ones are very much checked if allowed to go without it; the earth to be loosened about the plants whenever it appears crusted. *Cucumbers*, the plants on the ridges will be greatly benefited by being mulched with short grass or litter of any kind, to be previously watered; water whenever they may require it to be given in the morning. *Mushrooms*, this is now a good time to make spawn for winter and spring use. *Small Salading*, keep up a succession by repeated sowings in the open ground in a shady spot. *Spinach*, it is necessary to sow every fortnight let the weather be what it may, as it so soon runs to seed. Keep it watered during dry weather. *Tomatoes*, keep the shoots thinned, trained, and well supplied with water, or but very little fruit can be expected.

FLOWER GARDEN.

Attend to the staking of plants in due time. Cut off the tops of Musk used as edgings to prevent it growing wild. Thin some of the young buds of the free-flowering Perpetual Roses, it will cause them to keep longer in bloom. Pinch off gross shoots on fancy sorts when a few eyes long. Take up the bulbs o

Tulips, drying them in an airy place. Do not remove any offsets as it is best to allow them to remain attached to the parent bulb till all are dry. Attend carefully to the Dahlias as they grow, and do not neglect tying up the main shoot to a stake, as it is easily blown down and the plant ruined for the season. They would also be greatly benefited by a good mulching of rotten dung during very hot and dry weather. Do not allow the *Salvia patens* to come up with a centre stem, by pinching it off close to the bottom half a dozen shoots will spring up, which is better than thick planting. By treating Hollyhocks in a similar manner, a great number of late-flowering shoots will be produced. Do not mow grass lawns too frequently if the weather continues hot, but ply the daisy-rake during the heat of the day.

FRUIT GARDEN.

It is advisable to begin the selection and potting of Strawberry runners for next year's forcing: as soon as they show a disposition to root peg them in small pots nearly filled with rich leamy soil. To destroy American blight which is very prevalent this season on Apple trees, use a hard brush to be well worked into the crevices, and all other parts affected. The laterals of Peach and Nectarine trees to be stopped above the second joint. Advantage to be taken of moist weather to remove the clay from grafts where the growth of the scion requires the matting to be loosened.

STOVE.

Give liberal syringings and keep up a constant kindly humidity by pouring an abundance of water about the floors, walls, &c. Continue to repot all such plants as are being prepared for late autumn and winter blooming. Keep up a stock of *Gesnera zebrina* in various stages of growth, and place another batch of tubers in a pan. Also attend to the culture of *Euphorbia fulgens*, which is one of the most useful of winter-flowering plants.

GREENHOUSE AND CONSERVATORY.

The *Clerodendrons*, *Gardenias*, *Isoras*, *Pergularias*, *Stephanotis*, *Jasminums*, *Plumbagos*, &c., when highly cultivated begin at this season to interfere rather too much with their weaker neighbours. To correct such an unseemly state it is advisable to remove them to the conservatory, where they will be slightly retarded, and where they will retain their blooms longer, and produce them of a deeper colour. Be provident in providing a succession of *Pelargoniums*, *Fuchsias*, *Heliotropes*, *Balsams*, *Cockscombs*, *Lilies*, and other such flowering plants to maintain a display throughout the summer and autumn. New Holland plants, such as *Pimeleas*, *Polygalas*, &c., may now require more pot room, the soil to consist of equal portions of fibrous loam and heath soil, with an addition of charcoal, gritty sand, and rubbly stones. If good heath soil cannot be easily procured make use of leaf mould with the loam. To secure thorough drainage make use of a good portion of charcoal on the top of the broken potsherds, then place a portion of the roughest soil on the drainage, and then filling up carefully around the sides, and pressing all together pretty firmly when potting them, then to stand them for a time in a shady situation in a cold pit, or in some place where they do not get sunburnt. The compactness and shape of each plant to be regulated by stopping or pinching back the growing-shoots in due season.

PITS AND FRAMES.

All late-struck cuttings, if not wanted for turning out, to be potted off for store plants, or for filling beds in the autumn. Continue to shift any plants that require it. W. KEANE.

DOINGS OF THE LAST WEEK.

So far as I recollect, I omitted all reference to the fruit garden, though it has been rather a busy time with that department. Up to this day (the 19th) I have not gathered a *Strawberry* out of doors, though they are swelling nicely; yet, as far north as Edinburgh and Dundee they have been able to pick more than a fortnight ago, showing that the position of a place has oftentimes more to do with its temperature than the mere latitude or even elevation. The Strawberry-border covered with loose sashes has afforded a little nice gathering, and will yield a profusion of fine fruit; the earliness being owing to the powerful sun of the last week, for in dull weather I have long proved that mere glass covering forwards hardly any at this season. A plentiful and regular supply for eight or ten days

has been chiefly derived from young plants taken up and potted about six weeks ago, and plunged in a slight bottom heat under glass, and plenty of air given. These, though many in four-inch pots, have borne profusely, and fine fruit, chiefly *Keens'*. None are left in the houses but a few *Queens* in the Peach-house, and all will be cleared out in a few days as soon as we can gather freely from out of doors.

Unless where plenty of air and light can be given it is useless to keep them in a house much after May. Some gentlemen have complained that their Strawberries are good in April, but after the first or second week in May they become mere mouthfuls of water. In many cases, though they look incredulous, the reason is perfectly obvious. Many of these early Strawberries are grown in vineries with the roof of the house pretty well covered with Vines. The Strawberries being set in when the house gets artificial heat, the first crop will come in when as yet the Vine leaves are rather small, and this will be still better produced if the Strawberries are gently started in a bed before they are placed in the house. But in the case of the succeeding crops the house gets much more shaded; and though when set the Strawberries swell pretty well, it need excite no surprise that the flavour should be so deficient. In such cases either the roof of the house must be less covered with the main crop, or a pit or a small house must be set apart for Strawberries where they can have the treatment they require. Even then flavour depends greatly on the weather, though something may be done by having the plants rather cool and rather dry for some hours before gathering. I have long found that if pretty well swelled the flavour will be deficient, even if the plants are taken to a cooler, open position. Sometime ago, to make room in the houses, and also to make amends for the shade which I could not help giving to Strawberry plants in pots, a good number were removed where they could have just a little heat in frames. The berries that were ripening even with the additional sun given to them, I could not send to table—they seemed such soft, tasteless things. The plants having fruit half swelled, or a little more, did admirably, and were very firm and well-flavoured. I just mention this, as there are proprietors of little glass houses who have no idea but that various crops may be grown one beneath the other, and good, well-flavoured crops too, though each of these needs all the sun that can be obtained for them, instead of being shaded thickly by each other. We have, no doubt, faults and omissions and commissions enough to answer for; but in such cases, when flavourless Strawberries are grumbled about, it is not so much the gardener as the accommodation that is at fault.

Those who intend forcing early had better be on the look out for runners. We prefer placing them, with a little stone to keep them down, on the surface of a small 60-pot filled with light soil; but where a frame and a slight bottom heat can be given them, I often cut them off at once as soon as the runner is formed, leaving a couple of inches from where the roots show next the old plant, which two inches or so do nicely for fastening the runner, with the incipient roots just beneath the surface in rich light soil. These, kept closeish and shaded in sunshine, soon make little balls of roots if assisted with frequent skiffs from the syringe, and a two-light box will hold a great number. I do not say this is the best plan, but altogether it is the most economical in a dry summer. Of course the plants must be potted before they are allowed to draw each other; but the potting will be a future consideration. I have just examined the border covered with sashes, and find I may now turn every plant out of the houses without any fear of want of fruit. Watered the main crops well; and, to prevent the water speedily evaporating, shook up the litter between the rows gently with the point of a fork.

Insects.—Insects have rather unexpectedly come in shoals. The lime and soot water settled the fly on the Currants and Gooseberries, which are loaded with fruit; but that, and picking, and shaking the bushes, with a cloth beneath to receive the falling enemy, have not quite cleared the bushes of caterpillar. We go round one day and cannot find one; go round again in a day or two, and find a twig or two with the leaves of the Gooseberry disappearing; and there is nothing for it but the old remedy of picking, shaking, and syringing—unless, in such rather solitary instances, carefully taking off the twigs and burning branch and caterpillars together. When the bushes are left pretty thick at pruning-time this last is not a bad plan; and where birds as well as caterpillars are apt to be troublesome, it is a good move to prune and thin little until the crop is secured.

A row of bushes on the north side of a wall we generally treat in this manner, giving them what little pruning they receive chiefly about this season, and scarcely ever touching them in winter or spring. Hellebore powder, and dry lime, and soot, will very much incommode the caterpillar if they do not kill them outright: but I do not like to apply any such remedy at this season, as, whatever of these powders adheres to the berry, is apt to make it swell unkindly, and eat hard if not gritty. A good look out, picking, or shaking on a cloth, which prevents them getting on the ground, and the use of the syringe or garden engine, using soot-lime water in a clear sherry-looking liquor (made by putting a bushel of soot and a quarter a bushel of lime into a hogshead of water and allowing it to stand twenty-four hours) are the best remedies at this period, and must be resorted to if fine fruit are wanted, as Gooseberries from bushes with deficient foliage are little better than bits of the wood of the tree.

Watered Raspberries as well as Strawberries at the roots; as in very dry weather and the surface soil dry, the berries do not swell so nicely, and are far less juicy and harder than is desirable. If too much wet is given, or too much rain comes as ripeness approaches, the fruit will be too surcharged with watery juices. Both extremes should therefore be avoided. The firmer a Raspberry or a Strawberry is, provided it is full-swelled and high-coloured, the more highly flavoured will it be: it is, therefore, advisable to gather a few dishes in advance if rain is apprehended. Black Currants will also require watering unless we have it from the heavens. Mature water, if not too strong, will be eagerly relished.

Cherry trees, mostly having good crops, have, at length, after looking very clean, been attacked, especially at the points, with the black aphid, and have been syringed and dipped accordingly. If taken in time, any of the applications will be useful, and keep the enemy in check until he chooses to leave the field. Soot and lime water, with a little sulphur in it, dissolved, is our favourite liquor. Dusting the points of the shoots with snuff, nay, even with dry dust, we have found useful; and dipping the shoots in strong solutions of Gishurst, tobacco water, soft soap, and, what is as good as any, size water, will generally settle all those thoroughly embedded in them; but these remedies are only useful when applied to a shoot as soon as a fly or two are seen upon it, and then the various solutions (we have used clay paint in addition) will do no harm. But stop until the leaves are encrusted with the black enemy, and then, whatever your application, and whether it kills insects or not, it is next to an impossibility to make these leaves live and be healthy for the season afterwards. Their destruction is pretty well already secured, and all the applications you can give them are next to labour, and time, and money, thrown away.

The "stitch in time" is the thing. It is, therefore, a great misfortune when this enemy attacks young trees and is allowed to get ahead, for lengthening of shoots is pretty well arrested for the season. When the fly first makes its appearance, the trees should be well syringed, then be gone over with the knife and thumb, and all points of shoots not wanted, or coming from spurs, and any very bad leaves, at once nipped off and placed in a basket to be burned. If the leading-shoots have merely a fly here and there, squeezing them quickly between the fingers and washing again to remove all remains of them, will often be all that is necessary; but if the point of the leading-shoot is plastered with them, the mere squeezing would be no use, for if the heart blood was not already extracted, the poisonous remains would be equally ruinous to health, and mere dipping to kill what was alive would not restore after such a visitation. The leaves thus extra bad are not often numerous at first, and the best plan is to remove them, or at least cut them off, leaving only a little bit above the leafstalk, but to retain the growing point untouched; and then, when well washed, or even dipped in a weak solution of glue water or other medium, the shoot will grow on healthily, and, by the end of the season, you will hardly know where the insect-covered leaves were removed.

Watered some of these trees with heavy crops alike to assist growth and swell the fruit. Few things are more annoying than to find one of these insects on the trees by the time the fruit is approaching maturity; for if there is a finer Cherry than another, the fly will generally be found bedded gluttonously on its stalk.

Whilst these lookings-over are going on, a sharp look out must be had for leaves joined or twisted together, so as to be devoured by caterpillars more frequent this season than

usual. The same remarks apply to Plums, only the green fly that assails them is more easily managed. A good stroke from the engine with soot-lime water generally settles them, if looked to in time; but if the reproductive powers have had full swing, you may destroy several races and find there is no want of fresh ones to come. Such waiting to give the reproductive powers full play, is like a man waiting to cut up a fine plant of Groundsel until it carries a head whiter than a Cauliflower, and then giving it a dig with his spud and chuckling, "Well I have done for you," to find in a few weeks that he will have hundreds or thousands instead of one to deal with.

Watered newly-planted trees, of all kinds. Gave water to young Peach trees against wall and in orchard-houses, and watered the ground in the latter to keep the air a little cool. Pruned and tied trees in early Peach-house, and cut some leaves in two, or removed them, to expose the ripening fruit more fully to sun and air, leaving the latter on night and day in such hot weather. Gathered Melons as they ripened freely; thinned out extra shoots; stopped and set fruit on young plants, giving them plenty of water, and keeping the older ripening plants rather dry, and giving what little was necessary below. Shaded them a little for the first time to lessen watering, both as a means of abridging labour, and economising water, which begins to be scarce, though we saved a good deal in the late rain. Watered Figs, but not extravagantly; for if too dry they do not swell freely, and if too damp they are apt to be deficient in flavour and crack prematurely. Thinned out extra shoots, and stopped those intended for autumn fruiting; and, the day being hot, got pretty well punished with blistered hands, as the result of the acrid juice getting over them. Threw away some plants of Loasa directly afterwards; for, if even the milky juice of Figs could do such a thing in a hot day, I feared the Loasa might do something worse to some one else carelessly touching or training it. Watered Vines, where needing it. Kept air on night and day in the early houses, from which we are gathering; will soon do so in the next; and would do so in all, did these warm nights continue, or were we nearer to a coal heap. The fruit in the late house needs thinning; and as they will be there some time, the bunches will be thinned more, and left more compact than in the earlier houses. Smoked with tobacco the early house for a little appearance of thrips. I generally have had traces of it every year since I filled the lower part of the house with Azaleas some years ago, to force them into growth. Unknown to me there must have been a few thrips in the Azaleas. I do not much like putting the Azaleas into a vinery since if it can be avoided.

The earliest of these houses we are gradually emptying of plants; the others have Begonias, Ferns, &c., in prominent positions, a few Camellias, Achimenes, &c., which are being shifted. Potted Pelargoniums for autumn, Salvias, Globe Aramantis, Fuchsias, and many little things. Tied and trained Fuchsias, &c., and finished planting Dahlias, after having fixed stakes for them. Tied and fastened Pinks, Carnations, &c., for which nothing is better than a stout wire twisted loose, corkscrew fashion; the stems are placed in the volutes, and are kept there, and need no tying.

In the flower-beds, the chief work has been to loosen the surface with a fork and hoe, in order to keep the moisture in and prevent the heat drying up the roots. Little watering has been given, unless to beds that were finally finished off with plants not large enough at first. The surface from this continual moving looks very dry, but the plants are growing pretty well, and most of them look as if they would fill their spaces. The ground is now getting nice and warm, and there is plenty of moisture far down beneath. When the soil becomes a little warmer, we shall resort to means to keep it both moist and cool without much assistance from the water-pail. We have been forced to cut down some fine specimens of Arbutus and Laurustinus close to the ground, from which most are breaking, though I expected they would have done so 3 feet or 4 feet from the ground. Singular enough, some fine plants of Sweet Bay, and even more exposed, are all sound, though the points are all browned and a few bits dead, with a little nipping off the points they will all be green by the end of the summer. The dying to the ground of the large Laurustinus will leave some large patches to turf over, which must be done ere long whether rain comes or not. There is only one effectual mode of turving in hot, dry weather in summer that ever I have found—viz., take the turf up fair for thickness, and soak it for an hour in a tub of water before laying it down, and also sprinkling the ground before doing so. If the

seams crack fill up with riddled earth and shade a few days with a hurdle or a few leafy branches. Unless burning hot the latter will not be needed.

The grass, though short on the principal part of the lawn where the flower-beds are most numerous, began to spangle with *Daisies*; but what from the much moving on the ground, even though rolled two days before, was little inclined to yield easily to the scythe. In fact, from these reasons, and the hot, dry weather, even though there was a fair deposition of dew, the man declared that they might as well try to cut cotton wadding, and I found it quite true. The space got over was a mere bagatelle in comparison of the usual performance. We began to be a little timid, too, that if we shaved it in too close we might have the grass brown on our hands in such continuous heat; and, therefore, the daisy-knife was used instead of the scythe, and though it has been done a week it looks nice and green now, and, unless in a dewy morning, hardly a bit too long. One man, with one of these knives, will clear more ground of these *Daisies* than some half dozen or as many more could accomplish with the vaunted daisy-rakes. The knives are double-edged, about 2 inches broad, 18 inches long, and flat on the lower side, furnished with a small handle like a crane-necked hoe, and that fastened into a neat, stout pole, some 12 feet or 15 feet long. The wielder of this simple instrument clears right and left of him, with a large, semi-circular sweep, and, if the sun is hot, an hour will settle all appearance of the *Daisies*.—R. F.

TO CORRESPONDENTS.

** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the "Journal of Horticulture, &c."* 162, Fleet Street, London, E.C.

SPECIMENS OF WILD FLOWERS.—H. A. D. is thanked very warmly for his specimens. They arrived in excellent condition between the layers of short grass, and were forwarded immediately to Miss Gower. We take this opportunity of saying that specimens of the roots and root-leaves should be sent with the flowers.

GATHERING APPLS AND PEARS (*Yectis*).—It is impossible to state specific times for doing this, the seasons varying so much in their ripening power. These fruits are ready for gathering, when, by lifting them gently to an angle rather above the horizontal, the stalk parts freely from the spray bearing it.

WORK ON TREES (*Norwicensis*).—The best, giving botanical descriptions as well as general information, is London's "Arboretum Britannicum."

GRAPE SPOTTED (*N. S. H.*).—Both the Muscat and Black Hamburgh berries are very severely affected by the spot, as gardeners call the gangrene which thus attacks the berries. The roots, most probably, are growing in a temperature much colder than they ought, but whether from the subsoil being wet and clayey, or other cause, we cannot say. If the roots are too deep, remove the surface soil down to them, replace it by richer soil to the depth of about 8 inches; much at night, but remove the mulching during the day. Water with tepid liquid manure once a-week in dry weather.

NURSERYMEN'S ADDRESS (*H. Q. C.*).—Messrs. D. & L., Edinburgh, is quite sufficient.

WEEDS ON GRAVEL (*H. Q. C.*).—The remedy you allude to is the refuse from chemical works where ether is manufactured. Watering with strong brine in dry weather, and sprinkling salt thickly on the gravel afterwards occasionally, will keep under the weeds.

ANTS ON ROSE TREES (*Ada H.*).—We do not think they eat the flower-buds, and certainly not until the buds had been wounded by some grub or beetle. However, you may prevent their approaching the trees, and benefit these at the same time, by sprinkling a little guano on the surface of the bed, and in a circle round each tree. We believe the ants ascend the trees in search of green flies and exuded sap.

VARIEGATED PANSY (*F. M. E.*).—Yours is the best of all the ways of packing we have ever seen. A Pansy flower and some leaves of a variegated Pansy through the post, wrapped in one fold of oilskin, the thinnest and flimsiest kind came as fresh as when gathered. The kind is very pretty indeed; a light golden hue, and your regret that the flower is not dark purple to show the harmony of contrast, tell you are none of the *lords of the creation*, or, if you be, you will never make a genuine "florist." Mr. Beaton, no doubt, would jump at your offer of a cutting. Send it in an oilskin fold, and, if the post does not smash it, we will see it safe to Surbiton.

AURICULAS AND POLYANTHUSES FROM SEED (*An Old Subscriber*).—No Polyanthus or Auricula that ever we knew comes true from seed, but you should change your seeds and sow every three or four years. For such common flowers any seed-shop is as good as any other.

WATERING A GARDEN (*A Subscriber*).—It is a very good plan to water all over a garden, late in the evening of hot summer days, with a rose and pipe, whether the wet gets down to the roots or not. Established flowering plants root deep enough not to want much water at the roots, and newly-planted-out plants if once well watered, to settle the mould about the roots, ought to do with that style of rose watering. Of course plants that were planted in tight halls will die by inches whether you water them by the hand or the rose.

PANSIES (*Annie*).—It is not unusual to have different coloured flowers on the same plant. You may be certain of the same effect by putting plants with different but harmonising coloured flowers together in one pot.

CABBAGE.—You ask, page at 226, what this is. It is a local name for the Charlock, *Sinapis arvensis*.

ROSES (*South Hants*).—The *Géant des Batailles* is of the deepest scarlet and crimson. Jules Margottin is a very large Rose, of a bright rose colour verging on light crimson; in shape and size like the old Cabbage Rose. It is one of the finest Roses known.

ASARUM VIRGINICUM (*W. X. W.*).—The last half of September is a good time to divide and transplant it. Mr. Beaton accepts your offer with many thanks.

CULTURE OF LILIUM LANCIIFOLIUM (*Onciphorus*).—*Lilium lancifolium* not only does not degenerate in this country, but it has rapidly improved, and so most of the Lilies do in England under good gardeners. Under pot culture the difficulty is to know how to hurt it all, except by growing it by fits and starts, as you seem to have done, and you may just as well throw them in the fire at once. You are only one out of many most excellent cultivators who failed and were fooled in their bulb culture. We can assure you that some of the best gardeners have been in the same fix as you are, and they lost or killed five hundred kinds of bulbs, every one of which was just as easy to grow as these Japan Lilies, which require much less attendance than Fluke Potatoes, and, probably, the severity of last winter did not kill them in the open beds in the Crystal Palace. We are quite serious in our advice about throwing badly deranged bulbs away, as by far the cheapest method; for it is a most difficult and very tedious process to reinvigorate them when once they are gone like your Lilies.

VERBENAS DROOPING (*R.*).—Your Verbenas were drooping their heads for want of water at the roots and nothing more. If you planted them out in their balls, and the balls entire, or nearly as they left the pots, or if any one had done so for you, the beds might have been watered twice a-day, and yet the Verbenas in that bed might be dying by inches for want of water. At all events, your Verbenas wanted nothing but water, and the only cause of their drooping was the want of it under a hot sun.

NAMES OF PLANTS (*C. H.*).—Your Fern is *Polystichum aculeatum, earlobatum*. (*H. B. E.*)—*Clomatis cœrulea*.

FLOWER SHOWS FOR 1861.

JUNE 25th. ROMFORD. (Plants, Flowers, and Fruit.) Sec., A. Cooper, Romford.
JULY 3rd. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.
JULY 6th. CRYSTAL PALACE. (Rose Show.) Sec., W. Houghton.
JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) Garden Superintendent, G. Eyles.
JULY 18th. TOWCESTER FLORAL AND HORTICULTURAL SOCIETY. Sec., T. B. Rodhouse, Towcester.
JULY 18th. PRESCOT. Sec., J. Beesley.
AUGUST 9th. BELFAST ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Carruthers.
AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.
SEPTEMBER 2nd. HECKMONDWIKE. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmondwike.
SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.
SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) Garden Superintendent, G. Eyles.
SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. Carpenter.
NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) Garden Superintendent, G. Eyles.
NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.
NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.
N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, AND HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

JUNE 25th. ESSEX. Sec., Mr. W. R. Emson, Slough House, Halstead, Essex.
JUNE 28th. DRIFFIELD. Sec., Mr. R. Davison. Entries close June 22nd.
JUNE 28th and 29th. TAUNTON. Sec., Mr. Charles Ballance. Entries close June 17th.
JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. Sec., Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.
JULY 18th. PRESCOT. Sec., Mr. J. Beesley.
AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. Sec., Mr. W. Houghton.
SEPTEMBER 3rd. FOCKINGTON (Yorkshire.) Sec., Mr. Thomas Grant. Entries close August 26th.
SEPTEMBER 11th and 12th. MANCHESTER AND LIVERPOOL. Sec., Mr. T. B. Ryder, 2, Elliott Street, Clayton Square, Liverpool. Hon. Local Sec., Mr. S. H. Hyde.
SEPTEMBER 24th. BRIDGEMOUTH. Sec., R. Taylor, Bridgmouth.
NOVEMBER 22nd, 28th, and 29th. DARLINGTON. Sec., Mr. J. Hodgson. Entries close November 11th.
DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.
DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., Mr. W. Houghton.
N.B.—Secretaries will oblige us by sending early copies of their lists.

CHICKEN SHOWS.

EACH season brings its topic. In hard weather we expatiate on the expedients for neutralising the effect of frost; we sympathise with our fowls during the cutting east winds; we try to

lead our readers along, showing the poultry pursuit is a very *Pactolus* when there is no prominent topic; and now that chickens grow while they are looked at, and prospectuses of summer shows reach us by every post, we are disposed to live our past triumph over again, to see with our mind's eye *that* pen of chickens, especially the cock. At the same time we admit the satisfaction of the mental excursion is not diminished by the fact this pen earned £8 nett, provided us with a silver cup, and at last were claimed at £10. Honestly speaking, we believe we have as good now, and the way in which they have grown of late, is, as Sam Slick says, "a caution."

Some of our readers will, perhaps, bear us out, but we have never seen chickens grow as they have done during the last three weeks. Our man says "they sot still and grewed." We have forgotten the cold weather, the bad weather, the dry weather, the bad hatching, the annual difficulty (for there is some new difficulty every year), and we certainly look on our stock with pride and expectation. We think we shall be winners. We ask ourselves where we shall begin, for we are aware there is only one real test, and that is to put our yard against another in presence of acknowledged judges. One place is too distant; another does not offer difficulty enough in the way of competition; and at last we fix on the Crystal Palace. This is become one of our great and acknowledged shows, and those who are successful there may look without fear to any other place. The first large chicken show is not without importance. It brings those together that will meet again, and it adds to or diminishes the prestige of a yard. Very often the prize list at the Crystal Palace shadows forth Birmingham. The owner of the first-prize chicken pen stands in front of it, "hears the stormy music," and "hails in his heart the triumph yet to come"—Birmingham, Liverpool, and Preston.

The Crystal Palace is especially adapted for a chicken show. They have space, air, and light, all three essentials for young poultry. The direction of this great undertaking has admitted the poultry shows are a source of considerable profit, they are anxious to please amateurs, and we hope they will be liberally met by them. It is time entries were made.

RETURNING POULTRY FROM SHOWS.

At a large poultry show lately held there were some mistakes in baskets sent with fowls for exhibition. On their return, old, broken, low, square baskets, not high enough for the fowls to stand upright, were substituted for new, round, high, strong ones with canvass covers. I think it would be more to the credit of managers of shows to see that the right baskets were returned to the right place, though I am aware of the arduous duties at those times; but the labels only required turning, and then there are both names and No. of pen upon it. Also, I think, railway companies ought to be a little more punctual with the fowls returning from shows. Mine were five days on the road from Truro. It was as much as I could possibly do to bring them round; they could not stand for some time after their return. I was obliged to use stimulants, and it will take another fortnight to bring them round properly.—Y. Z.

[This annoying mistake occurs too often, and might be easily avoided by the exhibitor always writing his direction on the reverse of the card or parchment which gives the direction to the exhibition. It would then only have to be turned, and would at once announce the ownership. As for the railway delays we wish, when any fatal injury is caused by them, that the owner of the fowls would sue the railway company.—EDS.]

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY'S POULTRY SHOW.—This is to be almost exclusively for chickens of the present year. The prizes being augmented by those of the Ashton Local Committee are now very tempting—ranging from £4 down to 10s., and embracing all descriptions of poultry. We have no doubt particulars will be advertised when the arrangements are completed.

CHARCOAL FOR TURKEYS.—A correspondent of the *Southern Rural Magazine* says that he has made successful experiments in feeding Turkeys with charcoal. He took eight of these fowls and put four in each of two separate pens, and fed them alike, with meal, boiled potatoes, and oats, with the exception that

one set had a pint of pulverised charcoal daily, while the others had none. They were all killed on the same day, when it was found that those which received the charcoal averaged each 1½ lb. more than the others, and their flesh was more tender and pleasant.

[This is not improbable, for it is quite certain that Pigs thrive better if they have a few pieces of coal, or cinders of coal, given them occasionally while fattening.—EDS.]

COALBROOKDALE POULTRY EXHIBITION.

THE second annual Poultry Show of this Society took place in a field belonging to Mr. Chune, of Coalbrookdale, on Wednesday, Thursday, and Friday last. The poultry was exhibited under a very large tent, supplied by Mr. Goodby, of Shrewsbury; and the internal decorations of flags and evergreens were profuse, whilst bouquets of flowers of immense size met the eye on every side. The whole arrangements were very good, and proved that the acting officials, Messrs. Boycott and Chune, had well provided against every emergency. It is gratifying such careful attention had been paid by these gentlemen, for the weather, unfortunately, proved most stormy and unfavourable. During Thursday it rained incessantly; but, from the forethought we have just alluded to, neither the poultry exhibited, nor the empty baskets in which they had travelled to the Show, were wetted in the least, the empty packages being at once carefully covered up with large tar sheets from the anticipation of bad weather. We can scarcely speak too approvingly of this precaution, as we well remember various instances that have come to our knowledge, of exhibition poultry being irrecoverably injured by their return journey in wet baskets. It is well here to just drop the hint to poultry committees, that, in case of hampers getting wet during an exhibition and fresh litter not being at hand, it is infinitely the best policy to empty the baskets *in toto*, before repacking the birds, than sending the fowls homewards, exposed to cold and damp, without the possibility of exercise of any kind. We again say, there is not a doubt that scores of valuable pens of fowls have been entirely lost to their owners by neglect in this particular, and, therefore, the present example of the Coalbrookdale Committee cannot be too generally followed.

In the *Spanish* class Mr. Teebay, of Preston, took both the prizes. It seems the present hot weather quite improves the health of his well-known old cock bird, it is very rarely indeed he has been shown in so perfect condition. This gentleman's younger bird, in the second-prize pen, has likewise much increased in value during the last few weeks. The pair of hens in Mr. Fowler's pen were capital; indeed, one of them was, perhaps, the best hen of this variety in the show tent.

The *Grey Dorking* class was not so good, as a whole, as that of last season, barring the two winning pens. A trio of first-rate chickens in this class seemed sadly affected by confinement, and, consequently, the sure test of handling was greatly to their disadvantage.

In the class for Black, White, or Pile *Game* fowls, the first-prize Pile *Game* Cock was unusually good, and many of the black ones were beyond mediocrity. Among the Black and Brown Reds, the two prize birds, one of each colour, could scarcely be excelled, and the Brown hen, in the first-prize pen, was one of the very best we have ever met with. A local exhibitor, Mr. Dyas, of Madely, has reason for self-congratulation on success in so severe a competition. In Duckwings, Mr. Chune took first prize with the identical cock that stood A1 in last year's prize list; he has also taken a like position at Beverley, the Crystal Palace and Precoat Exhibitions.

Mr. Stretch, of Liverpool, secured, as customary of late, both the first prizes in Buff and also Partridge-coloured *Cochins*, with birds of first-rate excellence; and the White *Cochins* of Mr. Robert Chase, of Birmingham, also called forth the approval of almost every visitor.

The *Hamburgh* classes were not well filled as to numbers, and, except the winning pens, were in anything but good plumage. It was the subject of general remark, "How early poultry has commenced moulting this season!" whilst last year they retained their feathers to as unusually late a period.

The *Polands*, all varieties competing, were as good as any we have seen for years past; the hens of the White-crested throughout the whole class could not be bettered, there being none save first-rate ones—a most unusual feature at poultry meetings.

Among the remaining poultry, the *Sultan* fowls, the *Brahmas* and *Game Bantams*, were by far the most meritorious of any.

We may also mention that Mr. Sainsbury, of Devizes, exhibited some peculiarly good Buenos Ayrean Ducks.

The Pigeons were the most excellent collection we have seen for many years past, but, unfortunately, a portion of the very best of them did not arrive at Coalbrookdale until many hours after the awards had been duly returned and printed. From what cause this delay in delivery arose we cannot tell; but are happy to inform our readers, that by next year the railway communication to Coalbrookdale, from every part of the kingdom, will (as by special contract) be completed, which will, most probably, wonderfully increase the numbers of pens that will then be entered, nor less so the number of visitors.

Blythe, of Birmingham, provided the pens, and likewise undertook the general feeding of the poultry. He appeared to give satisfaction by his attention to his duties.

During the whole time the Show remained open, the Committee were incessant in their attendance, and everything consequently went forward most satisfactorily. Great amusement and jocularly arose from some foot and hurdle races that took place in another part of the field contiguous to the tents—amusements carried on without intermission until nightfall, amid roars of laughter arising from the mishaps occasioned by leaping at full speed.

SPANISH.—First and Second, R. Teebay, Fulwood, near Preston. Highly Commended, J. K. Fowler, Aylesbury. Commended, W. Swann, Loxells, near Birmingham.

DORKINGS.—First, W. Copple, Eccleston, Prescott. Second, H. W. B. Derwick, Helmsley, Yorkshire. Highly Commended, Rev. A. G. A. Baker, Old Warden, Biggleswade.

GAME (White and Piles, Black and Brassy-winged).—First, G. W. Moss, the Beach, Aigburth, Liverpool. Second, J. Rogers, King's Norton, Birmingham. Highly Commended, C. W. Dyas, Madeley, Salop. Commended, T. Burgess, jun., Burley Dam, Whitechurch.

GAME (Black-breasted and other Reds).—First, G. W. Moss, the Beach, Aigburth, Liverpool. Second, C. W. Dyas, Madeley, Salop. Highly Commended, G. W. Moss, W. Dawson, Selby Oak, near Birmingham; S. T. Smith, Lincoln Hill, Ironbridge. Commended, G. Wycherley, Wellington; J. R. Rogers, Honiton, Devon.

GAME (Duckwings and other Greys).—First, Col. W. Blackburn, Leamington. Second, W. Dawson, Selby Oak, Birmingham. Highly Commended, Miss L. Egremont, Wroxeter Vicarage, Salop. Commended, J. R. Rogers, Honiton, Devon.

HAMBURGERS (Gold or Silver-pencilled).—First, G. Elythe, Birmingham. Second, J. Dixon, Bradford, Yorkshire. Commended, R. Duggins, High Street, Birmingham.

HAMBURGERS (Gold or Silver-spangled).—First, H. W. B. Berwick, Helmsley, Yorkshire. Second, J. Dixon, Bradford, Yorkshire. Highly Commended, H. Carter, Upperthong, Holmfirth; W. R. Lane, Bristol Road, Birmingham.

GAME BANTAMS.—First, G. C. Whitwell, Kendal. Second, R. Moon, Sandford Lodge, Wavertree. Highly Commended, H. Ellis, Northallerton, Yorkshire; T. Johnson, Fainsfield, Nottingham.

BANTAMS (any other variety).—First, T. H. D. Bayly, Ickwell House, Biggleswade. Second, R. Duggins, High Street, Birmingham. Highly Commended, J. Rogers, King's Norton, Birmingham. Commended, J. Dixon, Bradford, Yorkshire.

DUCKS (White Aylesbury).—First and Second, J. K. Fowler, Aylesbury.

DUCKS (any other variety).—First, G. S. Sainsbury, Rowde, Devizes. Second, J. K. Fowler, Aylesbury.

COCHIN-CHINA (Grouse or Partridge-colored).—First, T. Stretch, Marsh Lane, Bootle, Liverpool. Second, Miss V. W. Musgrove, Aughton, Liverpool. Highly Commended, P. Cartwright, Oswestry; T. Stretch; E. Tudman, Ash Grove, Whitechurch.

COCHIN-CHINA (Black or White).—First, R. Chase, Moseley, Birmingham. Second, W. Dawson, Hopton, Miffield, Yorkshire. Highly Commended, G. Lamb, Compton, Wolverhampton. Commended, H. Yardley, Market Hall, Birmingham.

COCHIN-CHINA (Cinnamon or Buff).—First, T. Stretch, Bootle, Liverpool. Second, Miss V. W. Musgrove, Aughton, Liverpool. Highly Commended, C. Felton, Erdington, near Birmingham; W. Bridger, Salford, near Birmingham. Commended, H. W. B. Berwick, Helmsley, Yorkshire.

POLARDS (any variety).—First, J. Heath, Nantwich, Cheshire. Second, T. P. Edwards, Lyndhurst, Hants. Highly Commended, J. Dixon, Eradford, Yorkshire.

ANY OTHER VARIETY.—First, R. Teebay, Fulwood, Preston. Second, W. Dawson, Hopton, Miffield, Yorkshire. Highly Commended, R. Teebay; W. R. Lane, Bristol Road, Birmingham. Commended, J. H. Cragie, Woodlands, Chigwell, Essex.

GAME COCK SWEETSTAKES.—First, J. E. Chune, Coalbrookdale. Second and Fourth, G. W. Moss, the Beach, Aigburth, Liverpool. Third, H. Parker, Wellington, Salop.

GAME BANTAM COCK SWEETSTAKES.—First, T. H. D. Bayly, Ickwell House, Biggleswade. Second, Miss V. W. Musgrove, Aughton, Liverpool.

PIGEONS.—First, H. Child, jun., Sherbourne Road, Birmingham. Second, J. H. Cragie, Woodlands, Chigwell, Essex. Third, H. Morris, Silverdale Lodge, Forest Hill, Kent. Highly Commended, J. W. Lowson, Beverley.

COCHIN-CHINA COCKS.—Prize, T. Stretch, Bootle, Liverpool. Highly Commended, E. Tudman, Ash Grove, Whitechurch; G. Lamb, Compton, Wolverhampton; J. Carr, Harford, Swansea.

DORKINGS.—Prize, H. W. B. Berwick, Helmsley, Yorkshire. Highly Com-

mended, E. Tudman, Whitechurch, Salop. Commended, Rev. A. G. A. Baker, Old Warden, Biggleswade.

PENCILLED HAMBURGH COCKS.—No entry.

SPANGLED HAMBURGH COCKS.—No entry.

SPANISH COCKS.—Prize, R. Teebay, Fulwood, near Preston.

GAME COCK SWEETSTAKES.—Prize, J. R. Rogers, Honiton, Devon. Highly Commended, G. W. Moss, the Beach, Aigburth, Liverpool. Commended, A. B. Dyas, Madeley, Salop.

COTTAGERS' POULTRY.—Prize, T. Davis, Coalbrookdale. Prize, J. Thomas, Coalmoor, Salop.

Mr. Edward Hewitt, of Eden Cottage, Sparkbrook, near Birmingham, officiated as the Judge of poultry.

CAUSE OF THE DEATH OF A QUEEN BEE.

I FORWARD the enclosed, a proof, I fear, of the perils attending the aspirants to regal powers, as well as of the vicissitudes to which a hive may be exposed as long as the succession to the throne remains undecided.

I must briefly state the circumstances of the hive. It threw its second swarm on the afternoon of the 7th May. The swarm was hived, and on the morning of the 8th two dead queens were cast out of the parent hive. The swarm was returned that morning; the queen not being captured, of course entered with her bees. The weather was dull, and all remained quiet till evening, when there was considerable excitement about the entrance, near which the returned bees appeared to be congregated, there being but few at the window behind.

The 9th was dull and showery, and all quiet till 6 P.M., a gleam of sun caused a rush for a short time. On the morning of the 10th the enclosed queen was found cast out, the cause of her death but too apparent, and involving consequences which I fear may be fatal to the hive; you will observe the deadly weapon remains transfixed in the heart. It may have somewhat shrivelled before reaching you, but might become more apparent if well moistened.

The question to be solved is, whether her rival had plunged the sting so deep as to render her unable to abstract it, and thus sealing her own doom with that of her antagonist, or is it possible that a worker may have done the deed of vengeance? The latter supposition is, to my mind, improbable. The observations I have made on the combats of the young queens have accorded with the theory of Huber, that though the workers may interfere so far as violently to restrain the movements of the combatants, even to the point of mutilating them, they do not employ the sting.

Perhaps by the aid of a microscope you could determine whether the sting is that of a worker or a queen. The sting of the queen is said to be shorter than the workers' and more curved. Unfortunately, I am an invalid, writing now from my sick couch, or I could readily assure myself of the safety of one queen if she has escaped, by observing the hive at the time she would be leaving it for her flights; as it is, I must trust to less experienced eyes for bringing correct reports. Should another dead queen be cast out, it would be interesting to examine if the sting had been lost. If on bringing out a dead queen the bees are greatly excited, I shall infer that the hive has become queenless. Such an occurrence did once take place in the apiary of—

INVESTIGATOR.

[We have submitted the doubly-fatal sting to Mr. Frederick Smith, of the British Museum, who has examined it through a microscope, and he states that it exactly corresponds with one he has extracted from a queen bee. Workers will sting a strange queen, but not, we believe, one hatched in their own hive. We should think it highly advisable to supply the colony with a royal cell which may readily be taken from any stock that shows symptoms of swarming, and which should be inserted as high up and as near the centre of the hive as possible.]

TO KILL BLACK BEETLES, OR COCKROACHES.—Mix equal quantities of red lead and Indian meal, or wheat flour, with molasses, making it about the consistency of paste. It is known to be a certain exterminator. A friend who was troubled with thousands upon thousands of them, rid his house of them in a few nights by this mixture. Put it upon iron plates, and set it where the vermin are thickest, and they will soon help themselves without further invitation. Be careful not to have any article of food near where you set the mixture.—(*Albany Country Gentleman.*)

FIRST SWARMS THIS SEASON.

I HEREWITH send you the dates of the earliest swarms in this district (Ulverston). The first was on May 27th; and I had myself one on the 9th, one on the 10th, and one on the 11th inst., and they were general from the 12th to the 14th.

The first swarm in 1860 was on the 12th of May, and they became very general about the 20th, the same year.

We have had a very dry cold season, and this, with the very bad effects that last season had upon our stocks in this district, cause them to be some three weeks later.

Thanks to the "DEVONSHIRE BEE-KEEPER" for his instructions about the bar-hive; but I must inform him, through you, that I did not alter the size to the dimensions he gave at a later date, as between the time of my writing and getting the answer, I had the opportunity of measuring a great many hives of comb that the bees had placed of their own accord, and they were all $1\frac{1}{2}$ inch from centre to centre.

In one of my rambles, about twenty-four miles north of here, I found, on inquiry, that fully three-fourths of the bees had perished during last winter. In Great Langdale alone they lost fifty hives.—A NORTH LANCASHIRE BEE-KEEPER.

P.S.—Since I wrote the above (June 14th) I see my swarm of the 9th has some combs 5 inches down, and upon the bars.

THE HONEY BEE.

By F. H. MINER.

"In spite of pride,
In erring reason's spite,
One truth is clear—
The works of God are right."

A BELIEF in this principle might have led to a solution of our difficulties; but we have disregarded the copy given by Divinity, leaned upon our own understanding, and sought out evil inventions. If our popular writers are to be believed, the instincts of the bee are wrong. They say upward ventilation is necessary in winter; but the bees have an aversion to openings above them. They have an unconquerable propensity to pass by the best hives invented, and fly away, in the words of one of our best authorities, "to a rotten tree—a miserable home in the woods." What a pity when the morning stars sang together these men were not there to have given a little of their sapient counsel, and had the instincts of the bee fitted to accord with the wisdom of this enlightened age. But seriously, can we suppose the bee, a native of the forest, out of the reach and knowledge of man, to have been suffering since the creation for want of a hole made above him in the fall and closed in the spring, and a little water fed on a sponge occasionally, &c. Is it not a presumptuous accusation against that Being whose wisdom is incomprehensible, and whose loving-kindness is over all His works? I read all the books, and am very grateful for the information obtained; but, when I follow the will-o'-the-wisps of human understanding in their departures from Nature, I find every step deeper mire. They are continually changing—they disagree with each other and with themselves in their different editions. Every month brings forth some evil invention that daunts its little day, and exposes an exploded humbug. Amid the darkness, I look for the true inspiration to the book of Nature, self-consistent and unchangeable, and to instinct, the voice of Deity. Let us examine the native home of the bee. It is conical—a few bees in the narrow top generate sufficient heat. A small swarm will do as much proportionately as a larger one; as they increase in number, and can advantageously occupy a broader space, the width increases. If by unfavourable seasons they are reduced to extremities, their last stores are in this narrow point, with every possible facility for recovery. If water should ever condense above them, it follows down the sides instead of dropping upon them. It is narrow, enabling the bees to occupy the whole breadth commanding all their stores, with a short line of defence against enemies. It is deep, giving space with none of its disadvantages. The bees keep below the entrance in warm weather, where they occupy all their combs, avoiding heat and the labours of ventilation, rising as cold weather approaches above the entrance, where a summer heat is maintained. It is round, presenting almost one-third less internal surface to carry off heat in proportion to the space enclosed, than a square hive. The side combs are narrow; the bees assume a globular form in cold weather corresponding with the internal surface. There is no necessity of passages through the combs, as there

are no broad combs and cold corners to cut off small divisions and make a "sabbath-day's journey" to and from the entrance, which is on the side, not at the bottom—the coldest place—where it cannot be guarded by the bees, and may be choked with ease with ice, and make it difficult to expel foul air; nor at the top, to let off the heat and let in the storm. It is enclosed on the outside with bark—a non-conductor, and lined on the inside with decayed wood—a non-conductor and absorbent. It is solid—does not wharp, shrink, or crack; it stands singly, allowing a free circulation of air, enabling the bee to know at all times whether it may safely fly. The surrounding forest breaks the force of the wind, moderating the temperature. In spring they get sunshine, in summer the shade.

"When wintry winds are howling
O'er prairies bleak and bare,
There's summer in their cosy homes,
Transport and plenty there."

But our bees are not in a normal condition. We have artificial requirements and artificial difficulties which need artificial remedies. We have many good writers, and I see no occasion to traverse the whole ground, when there is no essential difference, as I have nothing new to offer, or do not feel competent to speak; but if I can add something to the general stock of knowledge, or throw light on some disputed point, it will be a little return for favours received from those who have had more capacity, leisure, and means to investigate this subject.

BEE-HOUSES, unless to keep out thieves, are worse than useless; facing the north, too cold in spring; to the east, they are called out too early, and coming home late are chilled by the shade, and lost; facing the south, too warm in the hottest part of the day; if to the west, they are called out too late, unable to return—they create local heat, by reflections, deceiving the bees. They come out, knowing nothing of the blast that is sweeping round the corners, gathering force by obstruction, till chilled in its icy embrace.

STANDS.—Our artificial hives are hard to keep warm and require an artificial position. I formerly set them up from 12 inches to 18 inches, for convenience in examining; but found by experience those set on the ground, facing the south, most out of the way of wind, swarmed earliest, and weak swarms could be brought through that would perish if set up. Separate stands are best, but I throw down a board, levelling it with pieces of wood not more than 2 inches in thickness, setting hives about 3 feet (more is better) apart; a narrow board on top in spring, and a broad one or two narrow ones in summer. The new swarms I face to the north in the shade of trees. Never let the sun shine on a new hive in hot weather, the comb softens and they run out of the hive and stop work. If the bees miss the alighting-board they should have the means to crawl up. Keep away spider webs and grass from the fronts of the hives; on the sides and back they are some protection from wind and sun in hot weather.

HIVES.—If they are broad in proportion to their height, the heat generated spreads horizontally; the larger the more difficult to maintain heat to develop the brood, and the longer in getting possession. A small swarm will begin in the warmest upper corner, and, needing this for brood, put their store on the side. As this part is too cold for breeding, to economise they are apt to build store cells of a large size: hence the great number of drones bred in flat hives. As cold approaches they cluster where they began to breed; frost covers their stores and they perish. Hives that are narrow and tall may be larger. As the heat rises they need no dividing-board, the space below does not deprive them of the heat they generate, and they only have to warm the part they occupy. In a narrow top the space is so small a very few bees can begin to advantage. It will be filled with worker cells, lengthened as they are vacated by brood for storing honey, till they approach within the thickness of a bee. They increase rapidly, soon taking possession of the whole of their stores. As the increase is all from a single queen, the only need is to keep her warm and to develop the brood. The hive that will bring her safely through the winter with the least bees to consume food, and the least food in proportion to their number is the most profitable, and this will be the hive easiest warmed. I have dwelt on this point because it is important and our best authorities are leading us astray.

The size of a hive should be limited to the productive capacity of the queen during a fair portion of the season, with space for stores, depending on climate and location. My experience is in favour of about 1800 cubic inches.

AFTER-SWARMS.—There, again, the instincts of the bee are right with some exceptions, for unfavourable climates and seasons; and if allowed to seek a home in the woods, they generally succeed, but in flat-topped hives in competition with other bees they need doubling. I want the hive, at least one, half full when cool. If the old hive swarms freely, the young queen finds room for a numerous brood, the few bees being occupied in feeding; she keeps possession till the hive is populous, and there being no comb to build, they easily lay in additional stores. The bees will be stronger and more numerous than if the hive had been pre-occupied with older bees and honey to the partial exclusion of brood, for they do not work in the caps without a fair supply below. For the same reasons, first swarms make better stock-hives than the second.

TO KEEP BEES APART requires some tact. My bees extend eight or ten rods east and west. Part of the hives should have the benefit of the morning sun to bring the heat up to the swarming-point a little earlier. The middle of the day is sometimes too warm. They come out at seven or eight o'clock or wait till afternoon, but generally their point is about eleven o'clock, most of the seasons will be within an hour. I had eight in twenty minutes one day, another eighteen, fifteen of them in an hour and a half. If bad weather keeps them back, or a warm showery day occurs, look for a rush. Swarming begins here about the middle of June. I used last summer three swarm-catchers a little different from those described by Quinby, invented by Mr. Loucks, of Herkimer, York State. Two feet stand perpendicular, the other two projecting like a ladder, bottom slipping each side of the hive, covered down to the cross piece above the upper entrance and to the other sides with musquito bar; they are kept setting before the bees, need no bracing or tying, are first-rate to secure swarms which attempt to leave; after being pinned must be put over after-swarms early to secure the queen. Any bees escaping will generally light on the outside.—(*Prairie Farmer.*)

(To be continued.)

LIGURIAN BEES IN SCOTLAND.

THE following paragraph is copied from the *Berwick Advertiser*. By way of correction, I may perhaps be permitted to hint that Exeter is in the west of England, and that the so-called Ligurian bee is, in reality, a native of the Alps. Mr. Swan is the gentleman whose letters upon the subject have been more than once submitted to the readers of THE COTTAGE GARDENER by "A DEVONSHIRE BEE-KEEPER:"—

"DUNSE.—INTRODUCTION OF 'LIGURIAN BEES.'—We doubt not but it will be interesting to our bee-keeping readers to know that the Italian or Ligurian bee has been successfully introduced into this neighbourhood; this being a distinct variety of honey bee from those already in this country, being distinctly marked with red orange-coloured stripes round the body, and said to be a very superior honey gatherer. It may be mentioned that they were brought from Italy, about two years ago, by an enterprising gentleman in the south of England; and Mr. Swan, of Dunse, procured a hive from him last summer (it being the only hive of this sort yet in Scotland) which has now swarmed twice, the first on the 4th of June, and also a very large second swarm on the 12th inst.; so that there is every prospect of their being perfectly adapted to our Scotch climate, notwithstanding their having been brought from a warmer country."

"IT'S ONLY LITTLE MAGGIE KNOCKING AT THE DOOR."—A *Subscriber* informs the Editors that a Magpie, on Friday night last, commenced pecking at the windows of the mansion-house; and though constantly frightened away, has continued pecking at the glass in an angry manner up to the present date; it generally commences at two o'clock in the morning. Perhaps some of your readers may be able to say whether any omen attaches to this, or if they ever heard of a similar instance before.

[The Magpie is, probably, one that has been reared by hand, and having wandered from his home throws himself upon your hospitality. Why not admit the wanderer? The superstitious in your own "green isle" would tell you to turn thrice round—at least, so we conclude from the following, given by Brand in his "Popular Antiquities:"—"Magot-pie is the original name of the bird; magot being the familiar appellation given to pies, as we say Robin to a Redbreast, Tom to a Titmouse, Philip to a

Sparrow, &c. The modern mag is the abbreviation of the ancient magot, a word which we had from the French. See *Italiwell*, p. 536. In the Supplement to Johnson and Steevens' *Shakespeare*, 8vo. Lond. 1780, ii. 706, it is said that the Magpie is called, in the west, to this hour, a magatipie, and the import of the augury is determined by the number of the birds that are seen together: "One for sorrow; two for mirth; three for a wedding; four for death." Mr. Park, in a note in his copy of *Bourne and Brand's Popular Antiquities*, p. 88, says that this regulation of the Magpie omens is found also in Lincolnshire. He adds that the prognostic of sorrow is thought to be averted by turning thrice round."]

THE DAMAGE CAUSED BY SPARROWS TO THE GROWING CROPS.

WHATEVER may be said to the contrary, practical farmers and those connected with the cultivation of land are well convinced that there is nothing more destructive of the growing crops than the House and Hedge-row Sparrows. At a certain season of the year, when the arable fields of happy England are assuming their golden and luxuriant embellishment, myriads of these feathery depredators may be observed in every field, plucking the golden berry from the ear, and even destroying ten times the quantity they consume; indeed Mr. McCulloch states that to estimate the quantity of wheat destroyed by Sparrows at only two pints per acre in England and Wales, will render apparent a loss of 16,080 quarters of wheat. This does not take into account the injury occasioned by the same cause to the rye, oats, barley, peas, and various sorts of seeds, both in the fields and gardens. We are glad to find, however, by our advertising columns, that an important invention has come into use, by which these destructive and rapacious gourmands may be destroyed, when ruralising throughout the lengthened hours of a summer's day in such destructive and injurious practices. "Barber's Poisoned Wheat" is the invention referred to, and, from the testimonials which the preparer has received from farmers of great experience, we have every reason to believe the remedy he has supplied will materially diminish the cause of so much complaint.—(*County Chronicle and Surrey Herald.*)

[We insert the above on the equitable consideration that both sides should be heard; but we must observe, as being beyond all dispute, that the Hedge Sparrow cannot eat wheat or other grain. It is a soft-billed bird, and lives on insects and very small seeds. To save them from being associated with "that pert thief, the City Sparrow," we will give a sketch of the Hedge Accentor" copied from Nature by that good sketcher of her doings, the late Mr. MacGillivray:—

"Come here, station yourself at the window, and observe the little brownish-grey birds that are moving about under the shade of that *Laurocerasus*. What can they be looking for there, in the middle of winter, when surely very few insects are to be found? Yet they shuffle along, with short steps, with a half-hopping and half-walking movement, in a sort of crouching posture, looking intently on the ground, and every now and then pick up some small article, apparently too minute for us to perceive it were we quite close to it. Quietly, peaceably, and industriously they search among the tiny protuberances of the soil, gently raising and shaking their wings as they proceed. A person passes within a few yards of them, and yet they merely move a little way off, or quietly hop into the bush, where they frisk about among the branches. A pert Robin drops in among them, and they disperse, not liking so troublesome a companion, but they show no fear of the Sparrows that have perched beside them, nor of the Thrush that stands on one of the branches. They sometimes pick up the small crumbs that are scattered near the door; but familiar and gentle as they are, they never enter the house, in most severe weather, or under any enticement.

"At all seasons these birds are seen in the gardens, and by the hedges, near houses; but during winter and spring they are much more numerous there, for those which in summer preferred remote places, then approach the habitations of man, although some still keep aloof. Hawthorn hedges are their favourite haunts, and on the ground along their bases they search for small seeds and insects, frequently making short pedestrian excursions into the fields on the one hand, or the footpath on the other. They flit about among the bushes with great liveliness, often running along the ground, and seldom

perching on the upper branches. Owing to the dulness of their colouring, and the celerity with which they take shelter, they are not very readily perceived; but they can scarcely be called shy under any circumstances, and they often allow a person to approach within a few yards, or even feet, without showing any apprehension. Even in winter they are not at all gregarious, for you seldom find more than two or three together, and it is very rare to see two flying in the same direction. Their flights are generally very short, and without undulation.

"After the middle of spring, they are less frequently seen about houses; and at all seasons they are to be found in hedges and among bushes, seldom appearing in open ground or upon trees. In fine weather they sing even in winter, nor is there any season of the year at which they are entirely mute; but from the middle of spring to the end of May especially, they are heard chanting their short, clear, pleasantly modulated, but not remarkably mellow song, generally when perched on a twig, but sometimes on the ground or a wall. During the breeding-season, the shake of their wings increases to a shuffle or kind of flutter, which they execute at short intervals; and this habit can hardly fail to be observed by the most incurious. Their ordinary cry is a slight cheep. They are not by any means quarrelsome, either among themselves, or with other small birds, and they seem to pair in the quietest possible manner.

"In dry sunny weather in summer I have watched them basking on the road near a hedge. They would stand quite motionless, their legs much bent, their tail touching the ground, their wings spread a little, and their plumage all ruffled; and thus they remain a long time, seeming to enjoy the heat exceedingly, and suffering a person to approach very near them, before they fly off. At all seasons, but especially in winter, I have found their stomach to contain small seeds of various kinds, and frequently those of grasses; but they also feed on insects, pupæ, and larvæ. They use a great quantity of minute fragments of quartz and other hard minerals, which are seldom met with in the gizzards of the Sylvis; so that with respect to feeding they resemble the Larks and Thrushes.

"They nestle from the middle of March to the beginning of May, choosing very frequently a hedge, or a holly bush, but often contenting themselves with any low and moderately thick shrub; and as the nest is often completed before the leaves have made much progress, it is very liable to be destroyed by boys. It is bulky, from $4\frac{1}{2}$ inches to 5 inches in diameter externally, its interior $2\frac{1}{2}$ inches across, and nearly 2 inches deep. One before me is composed externally of a few hawthorn twigs, a great quantity of dry grass, and then a thick layer of moss. The lining is a quarter of an inch thick, and composed of hair of different kinds, with a considerable quantity of wool. Another is lined with horse and cow hair, intermixed with a large quantity of the fur of the hare. The eggs, five or six in number, are of a fine greenish-blue colour, and have an oval rather pointed form, with a glossy surface; their longitudinal diameter varying from nine to ten-twelfths, the transverse from six and a half to seven-twelfths. There are generally two broods in the season.

"Mr. Neville Wood remarks that 'none of our smaller British birds (the Field Thrush excepted) will build in a tree or bush which already contains a nest, whether that nest be deserted or not.' I have seen, however, in a honeysuckle bower three nests of small birds—namely, the Thrush, the Green Linnet, and the Hedge Chanter; and Sparrows sometimes build among Rooks' nests. That successful observer of the habits of birds has given a very detailed and most accurate account of those of the present species, which I therefore beg leave to recommend to notice; but from which I must refrain from making extracts, being anxious to relate as little as possible of the observations of others.

"The bird is liable to a singular disease, consisting of tubercular and apparently carcinomatous excrescences upon the eyelids and about the base of the bill. I have several times shot individuals thus affected, but am unable to say whether the complaint ever proves fatal. Indeed it is very seldom that one falls in with small birds that have died, from whatever cause, and the reason probably is that they are soon picked up by rapacious quadrupeds and birds.

"The Hedge Chanter is resident throughout the year, and generally distributed. Even in the bare islands of the north of Scotland, where there are no hedges, and scarcely a shrub 4 feet

high, it is here and there met with in the vicinity of houses, where it builds in holes of walls, wood piles, and similar places. Being extremely hardy, it does not perform partial migrations, but remains in its native district, merely drawing nearer to the habitations of man in winter, and occasionally tending to enliven the dull season by its pleasant song. It seems from the following note of my friend Mr. Weir, that it also claims a place among the nocturnal songsters. 'In a holly hedge about 30 yards from my bedroom window, when I resided at Lauriston, near Edinburgh, I have again and again heard the male, about eleven o'clock, in the darkest evenings of autumn and winter, and even when it was cold and frosty, go through his usual notes. At the regularity of time when he poured them forth, I have often been astonished.' Possibly this regularity have depended upon that of my friend, who, in retiring to bed, may have sent a blaze of light through his window upon the hedge.

"The Hedge Chanter," says Mr. Hepburn, 'commences singing about the 20th of February. I have seen its nest and eggs by the beginning of April. Often two broods are raised in the season. I have often seen it sitting on the very top of a tree about 25 feet high, singing its sweet notes eight or nine times in succession; but during cold windy weather, it seldom repeats it so often. The female sits eleven days.'"]

VARIETIES.

CAPE DE VERD ISLANDS.—Near Fuentes we saw a large flock of *Guinea Fowl*—probably fifty or sixty in number. They were extremely wary, and could not be approached. They avoided us, like Partridges on a rainy day in September, running with their heads cocked up; and if pursued they readily took to wing. Generally the atmosphere is hazy; and this is caused by the *falling of impalpably fine dust*, which was found to have slightly injured the astronomical instruments. The morning before we anchored at Porto Praya, I collected a little packet of this brown-coloured fine dust, which appeared to have been filtered from the wind by the gauze of the vane at the mast-head. Mr. Lyell has also given me four packets of dust which fell on a vessel a few hundred miles northward of these islands. Professor Ehrenberg finds that this dust consists in great part of infusoria with siliceous shields, and of the siliceous tissue of plants. In five little packets which I sent him, he has ascertained no less than sixty-seven different organic forms! The infusoria, with the exception of two marine species, are all inhabitants of fresh-water. I have found no less than fifteen different accounts of dust having fallen on vessels when far out in the Atlantic. From the direction of the wind whenever it has fallen, and from its having always fallen during those months when the harmattan is known to raise clouds of dust high into the atmosphere, we may feel sure that it all comes from Africa. It is, however, a very singular fact, that, although Professor Ehrenberg knows many species or infusoria peculiar to Africa, he finds none of these in the dust which I sent him. On the other hand, he finds in it two species which hitherto he knows as living only in South America. The dust falls in such quantities as to dirty everything on board, and to hurt people's eyes; vessels even have run on shore owing to the obscurity of the atmosphere. It has often fallen on ships when several hundred, and even more than a thousand, miles from the coast of Africa, and at points sixteen hundred miles distant in a north and south direction. In some dust which was collected on a vessel three hundred miles from the land, I was much surprised to find particles of stone, above the thousandth of an inch square, mixed with finer matter. After this fact one need not be surprised at the diffusion of the far lighter and smaller sporules of cryptogamic plants.—(*Darwin's Journal during the Voyage of the "Beagle."*)

LINT was formerly prepared from old linen rags by a process which I shall presently describe. The machine-made lint now generally used invariably contains a portion of cotton; and the variety known as cotton-lint—the term is an etymological contradiction—is formed exclusively of this fibre. Flax, which consists of woody fibre, is procured from the inner bark of the stalk of *Linum usitatissimum* by the process of steeping and stripping off the bark. Under the microscope the fibres are readily distinguished from cotton, being round and attenuated to a point at each end. Cotton is composed of the hairs surrounding the seeds of various species of *Gossypium*. These hairs when dry exhibit under the microscope a peculiar twisted

appearance. The quality of cotton depends on the length, strength, and firmness of the tissue, or, as it is called, the staple. For the preparation of lint, long-stapled cotton at about 10d. the pound is required. Flax lint is more cooling to a wound than that made from cotton, as it conducts heat more readily. For the same reason a linen shirt is cooler than a calico one. Flax lint has other points of superiority; it is much softer in fibre than the cotton fabric, and its absorbing power is greater. For many purposes, however, cotton-lint may be profitably substituted for the more costly product. Although it is not liked by the surgical profession, most pharmacists use it in unimportant cases. For wrapping round dental instruments and similar purposes, it is nowise inferior to the best flax lint. Lint made from linen rags is now seldom seen, though many eminent practitioners prefer it to that made by steam-worked machinery. Six years ago the scraped-linen lint was in general use, and a sad outcry was raised against the patent fabric which had then been but recently introduced. The wholesale lint manufacturer of that day looked to the Jews for a supply of linen rags applicable to his purposes. For these rags he generally paid an exorbitant price. To prepare them for the operative lint maker, who was invariably a female, the seams had to be cut out, and the ragged and threadbare portions removed. The average loss in weight from this operation amounted to nearly twelve per cent. upon ordinary rags, and to about half that on old sheeting and linen of an analogous description. The rags were then washed thoroughly clean, and cut to the width of the linting machine. Before describing the process of linting, I must call attention to the peculiar structure of the article which it produced. If the reader will take a piece of the old-fashioned lint in his hand, he will find, on endeavouring to pull it to pieces, that he can do so with the utmost ease in one direction, but not in another. On examining it in a strong light we will see the reason of this. All the threads which run in one direction are but very slightly frayed or scraped, and remain nearly as strong as when they came from the loom; but the threads which run crosswise are reduced to hairs of infinitesimal thinness—though none are cut through—the rest of their substance being raised into a soft “fluff,” which constitutes the lint. The process by which this result was attained has been thus described by a writer in “Chambers’ Journal,” to whom we are indebted for several of the preceding facts:—“On visiting the lint-maker at her work, we find her seated in a lofty attic of a dingy house in a back street not far from the bank of the Thames, where the river runs towards Limehouse. In order to get at her apartment, we have to pass through a series of hanging gardens of damp rags, for the most part less than a foot square in size, and which, having been washed clean, are hung out to dry upon the staircase and landing, the weather being ‘mizzly’ out of doors. From such a manifold demonstration, we conclude that the lint-maker we have come to visit, by introduction of a friend who employs her, if she works for the middleman, works also on her own account, and cultivates a connection. On entering the room we find her seated in front of the linting machine, a rude and primitive instrument, about the size of the stool of a banker’s clerk, and not a whit more ingenious in its construction. The affair is just the shabbiest of all shabby contrivances for bringing the edge of a sharp blade, about 15 inches in width, to bear upon a little platform beneath. There is a kind of treadle worked by the foot, which assists the hands of the manipulator in using the knife. Upon the flat surface of the little platform is stretched the rag, or that portion of it undergoing the operation which has to be linted. A simple contrivance keeps the rag partially strained. As the knife hangs in its frame over the cloth, its edge is parallel with one line of the threads, and, of course, perpendicular to the other line. Several of these machines are at work in the room, and the blades are rising and falling with a dull, thumping, scraping sound continually. As the blade descends, it cannot much injure the threads whose course is parallel with itself, for obvious reasons; but it would, being very sharp, cut through the others were it allowed to descend with sufficient force. The force of the descent, however, is regulated by the dexterity of the worker, so that it shall only partly sever the cross-threads; and, at every fall, while the knife is down, and its edge embedded in the partly severed threads, the blade is forcibly shifted in the direction of those threads for a certain small space. It is this horizontal shifting of the sharp and heavy blade of the knife upon the strained rag while it is half cut through, which, by disintegrating those threads that cross the blade at a right angle,

and raising nine-tenths or more of their entire substance into a soft woolly pile, produces the lint. It is worthy of remark, that the threads which, lying horizontally with the knife, escape serious injury by the process, render an important service by preventing the disintegrated pile from being detached from the surface of the rag by the violent passage of the blade.” The preparation of lint by steam power has been made the subject of several patents since the above description was written. A suitable fabric is now woven expressly for the lint manufacturer in lengths of one hundred yards. This forms the raw material, and takes the place of linen rags. Having been imperfectly bleached, it is sent to the lint maker, who completes the bleaching, and extracts impurities consisting chiefly of lime and the bleaching agents left in the texture. The cloth is then stoved and wound on rollers ready for the linting process. In the best machines, the pile or nap is raised upon the cloth by knives making upwards of 500 strokes a minute. The motion of these knives or scrapers is rotary in some machines and vertical in others. The latter motion is stated to be practically the best, as the knives moving vertically beat and soften the cloth upon which they raise the pile. A good machine will produce about eighteen yards or 2 lbs. of lint per hour. The fabric after leaving the machine is passed through the calender and mechanically divided into pounds. It is then rolled and labelled ready for use.—(*Chemist and Druggist*.)

TO KEEP BUTTER SWEET.—A correspondent of the *American Agriculturist* gives the following directions for preserving butter in good condition for any length of time. In May or June, when butter is plenty, work it thoroughly two or three times, and add at the last working about one grain of saltpetre and a tea-spoonful of pulverised loaf sugar to each pound of butter. Pack it tightly in stone jars to within 2 inches of the top, and fill the remaining space with strong brine. Cover the jars tightly, and bury them in the cellar bottom, where the butter will keep unhurt for a long time.

OUR LETTER BOX.

VARIOUS (*A Subscriber*).—Most of the methods said to be effectual in curing a hen of her disposition to sit are simply ridiculous—for instance, that of ducking them night and morning. We have an out-pen on purpose; there is no nest or semblance of one, nor any corner where one can be made. It is pain, hard gravel. All those that are broody and are not intended to sit, are put in here, where there are generally several more and a cock. They show a great deal of indignation for a day or two, and then accept the situation. Daily’s roop and condition pills are to be had at 113, Mount Street, Grosvenor Square. The “sound unmusical to poultry ears” you mention, is the result of cold, and in some breeds would be the certain precursor of roop if neglected. Nothing of the sort is to be dreaded in Spanish; they are not subject to it. In all breeds at this season of the year, such symptoms may be arrested by the use of stimulants for a day or two; strong ale is both harmless and effectual. It is given most easily by soaking bread in it.

CHARACTERISTICS OF COCHIN-CHINA CHICKENS (*F. Z.*).—A good specimen of a Cochinchina chicken should be whole-coloured, but the colour may be buff or lemon according to fancy. The same may be said of the legs; but by far the most attractive colour in chickens, is a bright but not a pale yellow. Choose them with straight combs, and bodies as deep as possible. Chickens fourteen weeks old have done well if they weigh 4 lbs. each. One pound per month is a large average. To avoid mistakes, we repeat either buff, cinnamon or lemon, are good colours, but the pen must be made up entirely of one or the other.

DRONES BEFORE SWARMS.—**LIGURIAN STOCKS** (*R. R. Preston*).—We never knew of a stock of bees swarming without a previous issue of drones, and imagine yours will prove no exception to the rule. We believe you may obtain a Ligurian stock of T. W. Woodbury, Esq., Mount Radford, Exeter, for five guineas. Buy a Dorking cock to run with your various hens, if you wish for good table chickens.

LONDON MARKETS.—JUNE 24.

POULTRY.

We have little change to note. The supply and demand are now so nicely balanced, that good fresh poultry meets a ready sale at fair prices, and the market is cleared out every day.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	5 0	to 5 6	Guinea Fowls	0 0	to 0 0
Smaller Fowls.....	3 0	„ 3 6	Leverets	0 0	„ 0 0
Chickens.....	2 3	„ 2 6	Pigeons.....	0 8	„ 0 9
Ducklings.....	2 6	„ 3 0	Rabbits	1 4	„ 1 5
Goslings	5 0	„ 5 6	Wild	0 8	„ 0 9

WEEKLY CALENDAR.

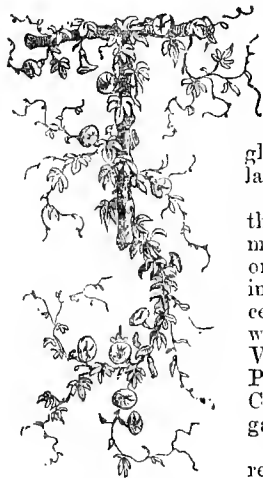
Day of Month.	Day of Week.	JULY 2-8, 1861.	WEATHER NEAR LONDON IN 1860.							Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets.			
2	Tu	Arenarias.	30.329-30.315	deg. deg. 74-52	N.W.	—	5 0 af 3	18 af 8	morn.	24	3 41	183
3	W	Sedums.	30.343-30.193	75-44	N.W.	—	5 1 3	17 8	5 0	25	3 52	184
4	Th	Linarias.	30.304-30.096	75-37	N.W.	—	5 1 3	17 8	5 4 0	26	4 3	185
5	F	Lysimachias.	30.241-30.081	77-48	N.W.	—	5 2 3	16 8	11 1	27	4 13	186
6	S	Euphorbiums.	30.169-30.113	69-39	N.E.	—	5 3 3	16 8	59 1	28	4 21	187
7	SUN	6 SUNDAY AFTER TRINITY.	30.269-30.194	69-36	N.E.	—	5 4 3	15 8	0 3	29	4 34	188
8	M	Chicorarias.	30.214-30.110	71-49	N.E.	—	5 5 3	15 8	sets	30	4 43	189

METEOLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of the six days are 75.1° and 51.5° respectively. The greatest heat, 97°, occurred on the 5th in 1852; and the lowest cold, 37°, on the 4th in 1855. During the period 130 days were fine, and on 101 rain fell.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 241.)

FLORAL PAVEMENTS.



HERE is a very beautiful fashion of floral decoration, and chiefly, I think, in Italy—originating, I suppose, in the gorgeous-coloured mosaics and the prevalence of glowing colours of that sunny land.

They form on great occasions there a sort of floral pavement, marking out distinctly the pattern on the ground, and then filling it in with a perfect mass of many-coloured petals. Rose leaves white and red, Camellias and Violets, Lilacs, Syringas, red Poppies, blue Corn-flowers, and Carnations, all contributing their gay and scented petals.

Now, there is often in England room to adopt this very pretty mode. Sometimes I have seen

little conservatories shut off from a landing, and not intended to be walked in—and how beautiful these pavements would look in them!

In Italy their chief use is for grand church pageants, to adorn the pavement of the church, all shining, as it already is in many instances, with its marble flooring; and at village feasts, and for gay weddings in little country places, I think this would be in England a new element of easily acquired beauty.

I doubt if Her Majesty has ever yet been greeted in her English welcomes by so fair a carpet; for though her people are ever ready to lay at her feet all their fairest flowers, they have hardly devised the means of rendering them into such an artistic pattern.

What a carpet would the Rose, the Thistle, and the Shamrock make sketched out upon the pavement, and filled in with their own bright colours on a ground of white. For the Thistle, perhaps, it would be difficult to find Thistle flowers; but I think the common Clover blossom or Verbena petals would match it with exactness. I shall endeavour to give an illustration for accomplishing this design, as it is one I think that many may like to know.

The Lily is again a most lovely pattern; and how many others are there not besides! The anchor of hope is an English device enough; and there are even tawny flowers to form the British lion; while the union jack, I think, would seldom come amiss; and the white cross banner of St. George would be always welcomed.

I cannot at all understand how such a decoration has remained so long unwired.

No. 14.—VOL. I., NEW SERIES.

The flowers here, again, have to be of distinct colours to fill up each its appointed place in the general work; but still it is very possible, if one flower is not quite of the required shade, to give it a little extra brightness or darkness, by mixing with its petals those of a flower possessing more of the required attribute.

Many flowers answer beautifully to be used in this way. White and purple Violets, Snowdrops, Crocuses, White Alyssum and Blue Bells, Lilac white and purple, Laburnum, Guelder Roses, Pyrus japonica, blossoms of many fruit trees in their wild or double state, pink, and white, and crimson Roses, Geraniums and Verbenas, the autumn saffron Crocus, also, with Dahlias and Carnations. There are few country places that cannot furnish at most seasons some sort of bright-toned carpets.

In winter even, when there is nothing else, there are always berries to be laid in close-grained masses along the edge of the green moss carpet. Variegated leaves, too, and light and dark green foliage, render even in the time when flowers are fewest some not unimportant substitutes.

Snowberries, too, not exactly to be walked on, for they crush so easily; while many kinds of winter Kale are exceedingly pretty in their fringy foliage; and there is a little scarlet-lined cup-shaped fungus (*Peziza*), growing chiefly on the broken wood of damp and shady hedges, or near to some dingly brookside, which looks very pretty half hidden amongst the moss.

It is to be found from November to March or April; and where it can be met with is such a pretty substitute for flowers which it quite matches in its brilliant colour. They should be gathered sick and all; and the stick has to be covered with moss, and be kept in a state of moisture.

In summer, before putting down the flowers it is well to sprinkle the stones well over; and if it is hot weather, they should be seen to be thoroughly cooled during some hours before.

If there is to be any sand for the foundation, it ought to be rendered wet; and moss, if it is used, should be likewise sprinkled.

Where the pavement is to be in a sunny spot it is often well to make it on a frame of black or dark-coloured canvass, or on a piece of oilcloth, to be afterwards carried to the spot on a board or hand-barrow, and gently slipped into its proper place.

In the hot summer weather, when so many flowers will not retain their petals, there are many advantages in adopting a plan like this; and if it is inconvenient to carry the flower-carpet from any short distance off to its destined place, or if the spot where it is to lie is constantly being walked over, and cannot be given up to the workers' hands, it is possible to arrange the design close by on a flat-spread piece of carpet or of oilcloth, and afterwards to draw it gently into its proper place.

The flowers, especially if they are not arranged on an under bed of moss, are generally better for being very thickly strewed—at least half an inch in thickness.

Some people think it well to arrange the pattern, or

No. 666.—VOL. XXVI., OLD SERIES.

form the words or initials if in that style, of different coloured stuffs, sewed carefully together into the proper shapes for the colours to cover.

For initials, mottoes, &c., whether alone or encircling a device, gold-coloured flowers, such as Laburnums, Buttercups, or double-flowered Gorse, look exceedingly well. But for a floral pavement so many flowers are so well adapted, that in most cases anything that abounds in the particular place or season can easily be employed.

DESIGN FOR FLORAL PAVEMENT.

I hardly know what design to adopt for describing the floral pavement. A mere tile pattern done on a large scale in brilliant colours is really beautiful.

A tessellated pavement may be made a perfect glow of colour all in the fairest harmony: and then, again, coats of arms and mottoes, with coronets or crests, are amongst the most effective of all the varied subjects.—E.

(To be continued.)

BEDDING-OUT AT THE CRYSTAL PALACE IN 1861.

THIS is the first time the first commissioner for planting here, Mr. Gordon, has had the opportunity of planting the whole garden entirely by plants which were propagated under his own directions. We can, therefore, hold him responsible for the whole execution, and he is entitled to all the praise due to the performance.

The first thing to tell is what he did not do. There is no Perilla or Purple Orach to be seen yet in any part of the grounds, and there is no bed of Variegated Alyssum and Variegated Geranium in the whole garden. The two together make the very worst combining for a good eye. On a dull day one can look at it easily: but in the sun it is more harsh on the eye than the bagpipes in a close entrance are on the drum of the ear; the only comfort is that half the world are not troubled with eyes of that kind of looks.

Another feature of this season is the strict admission of planting in pairs, instead of in pigs-with-one-ear way; and a fourth point is to have all the beds which lie in long continuous lines planted on the contrast ribbon style. Even the "slopes" on the Rose Mount, just above the Roses, are now done "all alike all round;" and that is, after all, the most telling way. But let us begin at the beginning, just opposite the railway entrance, and go the left to get all round the Rose Mount. By that means we get on with the sun, which is always the best way of seeing the effect of flowers.

The angle-bed there is now very gay with Delphinium formosum, trained down between the Scarlet Geraniums which will occupy the bed as the formosum goes off. This is, therefore, a practical illustration and the best telling illustration that can now be made of how useful animals would be in the same way. These formosum Larkspurs are here used exactly as if they were fine large blue annuals, with this difference—that they save the roots of them every year instead of the seeds like annuals. As soon as the Delphiniums are over they will be cut down close to the ground, taken up and divided at the roots, and planted out in the reserve garden for another year, all in one day. One ordinary plant of this Delphinium at this root-parting will make four better plants for next year, or six as good as some of the mother plants had been at that age. Any time from the autumn to the end of February will do to return the renewed plants of formosum to the same or similar flower-beds, and you have only to plant them in rows, so that Scarlet Geraniums can be regularly planted between them at the proper time. This is the best way for this fine Larkspur of all the ways that have been yet tried, so please dinna forget it at the proper time. Of course you will take up your formosums wherever they are when their bloom is over this summer to be in readiness for the thing as it should be about a bee Larkspur.

Opposite that blue and white and scarlet combination-bed lies a round bed of Tropæolum Triomphe de l'Élysée—the lemon yellow with dark spots, edged with Variegated Alyssum. The next circle to the left, and right opposite the steps out from the turnstiles at the entrance, I want particularly to draw your attention to this bed: it is Sidonia, one of the ribbon or diadematum race, and the lightest of it, and as showy a bedder as ever any

lady designed; but there is one secret about it which might spoil a bed. The plants north of London ought to be two years old, and to be planted just thick enough to cover the bed the first day. For the rest of the season it does nothing but bloom. This bed has a purple edging of Verbena. The next bed is a circle also, and is of Tropæolum elegans, edged with Mangles' Variegated. The next is a corner bed, and is one of those charming Fothergillii beds which attract the attention of ladies so much that all kinds and sorts of Nosegays are eagerly sort after for this very Mount as you will see presently. The red variety of Fothergillii is there also, making two of the oldest bedders in the race, and two which Lady Granville had planted out at Dropmore when the first bedding system began in England, as you will see in Loudon's list of bedding out there in 1821—1827, or rather in Mr. Bailey's list published by Loudon in the "Gardener's Magazine." The two first bedding kinds of Geraniums are, therefore, still the two most in demand—the purple, *alias* pink Nosegay, and the red ditto (called rose at the Crystal Palace). This splendid corner bed is edged with blue Lobelias, and is planted as thick as it will be seen in some places at the end of August. All the beds are much closer planted there than is usual, and most of the plants were in bloom then, the 20th of June.

From this corner bed we turn up the walk to the Roses, and there are two beds on one side, and one bed only on the opposite side, owing to the different lengths of the curves of this walk. The one bed on the off side from the Fothergillii is to be the gem of this season. A strange coincidence to an old gardener that gem will be. The first list of bedding plants that ever was printed and published in England appeared in 1828; the two Fothergillii were in it, as just said, and in that very year the veriest Verbena was made known in England; the second kind, or third at least, was Verbena pulchella, a little creeping plant with purple flowers, which soon sported into white pulchella in Ross-shire first, and next in the south of France into stripes of purple and white, and that sport is the Imperatrice Eugénie. Well, the original Verbena Melindris and the last improvement of the second oldest Verbena are combined or mixed for this very gem. I often said I never saw a better bedding Verbena than Melindris, and I have often been pulled over the coals for saying so; but if there will be a better Verbena-bed in the three kingdoms this season than that gem-bed, I shall freely undertake to eat back my words for my next supper. The two beds opposite this gem-bed are this—one of a fine Variegated Geranium like, if not, Alma mixed with Imperatrice Eugénie edged with blue Verbena; the others with King Rufus, or one like it, with two rows of Baron Hugel for edging.

Then, on the circumferential walk are two beds, one of Gazania splendens and Cineraria maritima, and one of Pink superb and Verbena pulchella; and the next corner bed; another splendid blue, white, and scarlet bed of the said Delphinium edged with blue Lobelia, a most telling bed. Then a clump of shrubs round to the north, and another corner bed which is of Calceolaria integrifolia floribunda, with one row of Crystal Palace Scarlet Geranium all round, and an edging of Cerastium. There are two circles opposite this corner bed, and two pairs of beds up the side walk to the Roses, the two pairs planted in match pairs thus—one of Verbena venosa, purple, edged with Cuphea ignea *alias* strigulosa, the other a streaky purple Petunia, with two rows of Nierembergia gracilis round it. The other pair in two Nosegays, Mrs. Vernon in one, with two rows of Variegated Geranium round it; the other crimson minimum Nosegay, a fine thing; and two rows of Variegated Geraniums like the other, two good match pairs. The two beds opposite the corner bed are this—one of blue Salvia, trained down, with Mangles' round it; the other of Bijou Variegated Geranium, mixed with Imperatrice Eugénie Verbena. And there are three more circles on to the next corner bed, one of Fuchsia Sir Colin Campbell, edged with F. globosa; one Robinson's Defiance, edged with blue Lobelia; the third, white Petunia, edged with Blue Bonnet Verbena. The corner bed next, and is of blue Salvia, trained down, and edged with Tropæolum Stanfordianum or scarlet-flowering elegans. Above this are two other match pair of beds, the first pair with Sidonia and two rows of Brilliant round it, and opposite the old Diadematum, nearest match for Sidonia, with two rows of Baron Hugel round, a good match. The other pair, one side of Admiral, edged with Cerastium, the opposite Purple King Verbena, edged with Variegated Alyssum.

From this to next walk is a long run with six circular beds at regular distances. The first circle is Calceolaria amplexicaulis,

edged with *Nierembergia gracilis*; the second, with *Attraction*, one of the very best bedding dwarf *Scarlet Geraniums* and nearly plain-leaved, edged with white *Verbena*; the third, *Blue Bonnet Verbena*, edged with two rows of *Evening Star*, ditto; the fourth, all of crimson *China Rose*, and stood last winter safe; the fifth is all of *Brilliant Variegated Geranium*, edged with the *Variegated Mint*; and the sixth, facing twelve o'clock at noon, all of *Gazania splendens*, in one perfect mass of the finest yellow ever seen in a flower-bed.

There must be, at the least, twenty beds of *Gazania splendens* at the Crystal Palace this season. It alternates with *Tropæolum elegans* in the circles along the whole line of the bottom part of the grand terrace; so if anybody, or sets of bodies, ever praised up this bedder sky high, he or they need not give up the puppet yet awhile. But on to the southernmost side walk up the *Rose Mount*, and the next is a corner bed and a contrast, and *Ignescens superba* and *Rubens* all round it, with an edging of *Mangles'*. The dark and the crimson of *Ignescens* bring out the tint of *Rubens* better than any way I have seen it. Indeed, before I came up to the bed I booked *Rubens* as *Paul Labhe*, the best of the *Rubens* breed. There is a circle opposite that corner bed, and two match pairs on the side walk above it; the opposite bed is a nice seedling streaked purple *Petunia* of their own raising, edged with *Nierembergia*. *Mrs. Vernon* and *Attraction* make the first pair, with *Blue Bonnet* round the former, and *Purple King* round *Attraction*. The upper pair are *Bijou*, *Variegated Geranium*, and *St. Clare*, ditto; the first mixed with the original *Verbena pulchella*, the other with *pulchella* in the form of *Imperatrice Eugénie*. Four circles to the next side walk beginning with *Verbena venosa*, mixed with *Heliotropium corymbosum*, the best to bed of all the *Cherry-pies*, being of a dwarf stock growth and a great bloomer; the second bed, *Brilliant*, edged with lilac Ivy-leaf *Geranium*; the third, with *Dandy* and blue *Lobelia*, plant for plant, all over the bed, of which we often spoke as we ought; the fourth bed, *Tropæolum elegans* all by itself. Then a corner bed to the side walk. This is one of the great-gun beds. *Cottage Maid*, the best *Horseshoe* large-growing of all the *Scarlet Geraniums*; *Flower of the Day* all round it, and *Purple King* for a deep edge. Opposite that great-gun of a bed are two circles, and above it two match pairs; opposite is a bed of *Sir Colin Campbell Fuchsia* with *globosa* round it, and *Triomphe de Hyris* with *Alyssum* all round it. *Purple King* and *Admiral Dundas* again make the top match pair, and both have *White Verbena* edging, and below them a match of *Rubens*, one; and *Miss Vernon*, one; with *Harkaway* round *Rubens*, and *Pet Superb* round *Miss*; and as this is the first time you could have heard of this *Miss*, know it was a guess *Nosegay* by somebody to *Mr. Eyles* two years back, and if you would like to know the properties of this flower, just ask for *Miss Vernon* on the south-west side of the *Rose Mount* and judge between us. *Pet Superb* is their name for their best kind of *Lucia rosea*. Three more circles bring us to the corner bed from which we started. One is *Attraction*, edged with *Mangles'*; one is *Calceolaria amplexicaulis*, edged with *Brilliant* var. *Geranium*; and the last circle is of blue branching *Larkspur*, which, if it does not last out the season, will be pulled up and the bed will be filled with a second crop. The last bed is the same as the first on this list, and is of *Punch* with the *Delphinium formosum*, as it is with *Cottage Maid* on the other side and just as fine; and opposite to it is the oldest *Geranium* in the garden, the dark red variety of *Fothergillii*, often erroneously called *crimson*, it is edged with *Verbena venosa*. On that, the last or the first side walk up the *Mount* are two sets of two-and-two beds, the upper set being a match gem, and the middle two not a match pair, one being *Gazania splendens*, and the other *Princess Alice Geranium*, which is a *Lucia rosea* kind, and the gems matched you must go and see. Small plants of *Lady Plymouth* or *graveolens foliis variegatis* of book botany, and *Verbena Melindris*, plant for plant, all over the bed; and let us hear how you like the match pair—the most perfect match in the garden, because both are made with the same plants, which is the end of the tether in matching pairs, and the end of my tale on the slopes of the *Rose Mount*, where any mortal who wants notions may pick them up as he goes along, and if he takes the *Journal* with him he cannot miss one.

I said that the slope above the *Roses* was the same all round the *Mount*, and perhaps the idea will express the meaning of the landscape-gardeners' terms "unity of expression." Although I never could quite comprehend unity of expression, this round-and-round-about way of planting seems to me to be the image of what is intended by the odd terms "unity of expression."

The unity of planting all round is on this wise:—Two rows of *Trentham Rose Geranium* on the top of the slope, two rows of *Calceolaria integrifolia floribunda* next, two rows *Crystal Palace Scarlet Geranium* follow, two rows *Purple King* succeed, two rows of *Tropæolum elegans* finish all but the edging, which is of *Mangles' Variegated Geranium*. If you look at it again you will see it is the ribbon for that order of the *Garter* which ties above the calf of the leg and below the cap of the knee, or the summit of the *Rose Mount*, to which we now ascend. Here are the six sunk-panelled beds in three match pairs all round the top within the arcades. The narrow border between the arcades and these beds is this year all in *Musk Mimulus*, except about a yard on each side of the six entrances, which yards are all in *Mignonette*. Of the sunk-panelled beds, two have the centres in *Agerstium*, with two rows of *Ignescens superba* and two rows of *Alyssum* round each. The next pair have *Calceolaria floribunda* for centres, then *Crystal Palace Scarlet* all round, and all ending in *Mangles'*. The last pair have *Calceolaria amplexicaulis* for centre, *Erise Unique* all round, and *Cerastium* outside. And the four circles for the ends of the four guy ropes to the flagstaff are all alike—that is to say, *Humcas* in the centre, then a ring of *Cottage Maid*, another of *Miss Vernon*, a third of *Flower of the Day*, the fourth *Baron Hugel*, and the outside blue *Lobelia*.

The *Roses* were in fine bloom, and neither they nor the climbers round the arcades suffered anything from the frost. The *Rose Queen of the Prairies* was thought to be rather tender, but it lost not a bud on one of the arches on the north side and on the outer side of the arch, where you may see it when you go to see all this bedding—for go we all must very shortly if we wish to keep pace with the fashion in fancies; for here they would rather go on tight ropes than stop progress in most things, and in our things most particularly. *Kew*, *Hampton Court*, and *South Kensington* will have to look to all their buttons and their beds, else they too, in three, will have a tight go of it up or down somewhere.

D. BEATON.

(To be continued.)

REGULAR FLOWERS IN PELARGONIUMS.

MR. DARWIN'S communication (page 211) has induced me to examine my *Pelargoniums*. I find regular flowers on the following plants:—*Etna*, *Richard Benyon*, *Mr. White*, *Miss Foster*, *Wonderful*, *Conqueror*, *Leviathan*, *Roseleaf*, *Symmetry*, and *Napoleon the Third*. In every case such flowers are central. On one plant of *Etna* six of seven trusses have the central flower regular.

It may be worthy of remark that I cannot find one regular flower on some seven or eight plants of *Gem of the West*, *Vestal*, and *Fairest of the Fair*. These are all white kinds. *Napoleon the Third* in one case, has a truss bearing one pip only, and that is regular.—P.

STEWARD versus GARDENER.

HOT-WATER TANKS FOR MELON AND CUCUMBER CULTURE.

THERE is constant contention between my gardener and steward about the stable-manure. The latter claims it for his *Turnips*; the former says he cannot do without it for his *Melons* and *Cucumbers*. To put an end to this perpetual discord I am willing to have hot-water conduits (described hereafter) through my *Melon* and *Cucumber*-beds. By such means a good moist heat will be secured at very little trouble or expense. The conduits will be of brick lined with cement, covered over with 3 feet *Bangor* slates, on which the earth will be placed. The circuit of heated water will be formed by a division, also of brick and cement, running up the centre.

A neighbour of mine has tried this hot-water system, and so far as heat is concerned it works admirably; but then his *Cucumbers* and *Melons* have failed—they have run into vine and formed no fruit. Is this from faulty management of the young plants? or is it a defect inherent in this system of growing *Cucumbers* and *Melons*? Much has been written on such subjects on which one cannot rely. Have you seen good crops of *Melons* and *Cucumbers* grown without the use of stable manure or tan? If so, is it by dry or moist heat beneath the beds?—N.

[We are no enemies—quite the reverse, to the division-of-labour principle, so far as the general advantage is concerned.

A man who has one class of duties to attend to will, other things being equal, perform these duties better than if he had several distinct foci of duty to think about. We do not by any means say that the man who does one thing only will be equally intelligent, or have a mind equally expanded, with the man whose duties are multifarious and he strives to do them all well; but the employer of the man appointed to one class of operations and the community in general will gain, because, other things being equal, he will be a more expert workman than his neighbour whose attention is distracted by differing and conflicting claims. The man who works at tailoring and shoemaking alternately could hardly hope to compete with an equally clever and industrious neighbour who restricted his skill either to the thimble or the last: hence, in all large places—except when, from peculiar reasons, it is desirable to have only one head cultivator and general manager out of doors—it is desirable that the office of gardener and bailiff should be held by different persons. In smaller places it is often more desirable, more economical, and more pleasant to all parties, as preventing all the jarring and discord alluded to by "N.," that these distinct offices should be held by one and the same person.

For instance, every faithful servant will desire to make the most of what is committed to his care; and there should be a clear understanding between employer and employed, not only as to what is expected, but as to the means by which these expectations are to be realised. All this should be clearly understood, without one servant being left to the tender mercy or the caprice of his fellow servant. Almost naturally the bailiff and the gardener look at the great question of manure from different points of view: and if the master settles not what each is to have there will be sure to be collision—not but that work might be made to suit both, and an unprejudiced person would see and say so. They, unfortunately, see little but rivalry—frequently honourably, and also very frequently dishonourably, conducted.

Thus you go into a farmyard in winter or spring, and you find the cattle and pigs can hardly move among the slowly fermenting material, which would just be the thing for Potato-beds, Asparagus-beds, early Cucumbers and Melons. Without such help the gardener finds he cannot obtain what his employers want; and they taking it easily, leave the gardener and the bailiff to settle matters just as they best can—or, as in many cases, though they delight in fine juicy vegetables, grudge every forkful of manure that goes to the garden as much as the most narrow-minded bailiff would. Turnips, and Mangold, and top-dressing of pasture, &c., are the only use he can see that the much should be applied to. No gardener worthy of the name will long conduct such an establishment, when manure and the substitutes for manure are withheld, and yet their results expected to be obtained: and hence the expense that many gardens cost, and the little comfort or pleasure derived from that cost.

The gardener may in all honesty propose to work the dung either in linings or otherwise, so as to get the fierce heat out of it, and yet leave it not too much exhausted for the Turnip crop. The bailiff gives a knowing whistle, which says quite plainly either, "I wish you may get it!" or, "Much good the Turnips would get with what came out of your clutches again!" He has a shrewd notion that a part of it would most likely be rotted down and used for Cauliflowers and Celery. But if that were the case with a portion, that is no reason why it should be the case with the bulk; or why the heat given off in the yard, or in the heaps of the yard, should be of no other benefit than injuring the lungs of every breathing animal in the yard, bestial or human. This is just how the matter will be if these two worthy men—and equally worthy both may be—unless there is a clear understanding on the subject, and that is honestly adhered to: for I have known cases where the gardener was to have so many loads of fermenting material when it suited him most, and if he did not mind he would find these loads dwindle down, get more beautifully less, until a common labourer could put the load in a wheelbarrow, and easily wheel it too.

Now, in default of other means of heating in small, moderate-sized places, one manager would make the dung do the most work in both departments. What was used for beds of Cucumbers could not well be taken from under them, unless the beds were supported on strong frames; but all that was used for forcing Asparagus, Sea-kale, Mushrooms, early Potatoes, &c., during the winter, and what was used as linings, especially against close brick pits, could be removed and replaced by fresh

before the linings, &c., were more reduced than the manure left in the yard, and which had done no service whilst it lay there whatever. Whenever the dung thus used for linings became decomposed enough for suiting the Turnip plant, before it was time to sow it, it could be removed, trodden firm, and covered with earth to keep in its best properties; and heaps thus formed would, I have no doubt, generally beat the manure taken at once from the yard.

Notwithstanding all the advantages of hot water, I have no doubt that the manure of many farmyards might be made to serve purposes of utility and economy as well as luxury, before it was taken away to the Turnip crop, &c. I have often wondered how farmers and farmers' wives fond of early vegetable productions, did not have a range of pits or frames in the best aspect of the farmyard, and raised sufficiently high to be above the reach of the cattle. Almost anything could be thus grown, if there were plenty of fermenting litter to place beneath them and around them. In June little heat would be required, and such heaps would just be as easily carted from as a heap thrown up in the yard by labourers on purpose. To make such use of the heat given off by fermenting manure either in the farmyard or elsewhere, in the side slips of the garden, the manure must be under the control of one person, whether he goes by the name of farmer or gardener matters not.

Without such arrangements, the plan proposed by our correspondent of putting an end to all discord by heating with hot water is the best. One hint here, however. The hot water alone, without any other understanding as to manure, will not prevent hot tempers or hot discords. The young farmer who attended a course of chemical lectures was asked what he had learned, and he replied, "He now knew that dung made barley grow," but he never doubted that before. Some gentlemen when they heat some pits with hot water, begin to look upon every load of dung for the gardener as an abomination. "What did I go to such expense for, if still you must be collecting dung, leaves, and all sorts of rubbish?" They know what dung will do to Turnips and Barley, but they want to escape from the conclusion that it is just as essential to Cabbages and Celery, and that without a fair portion of manure these and many things besides will be hard and bony, instead of juicy and succulent. I am well aware of what aeration and pulverisation will do. I know that excess of manure will make vegetables rank and anything but sweet; but decomposing vegetable matter at least, and a little animal matter, too, must be obtained, if good vegetables are to be had continuously from ground heavily cropped, and which can hardly have a week's rest, summer or winter. So much is this feeling getting abroad, and so difficult is it to get dung, that many gardeners almost regret their fine ranges of pits heated by hot water. The old hotbeds always furnished a supply just of the very thing that suited the crops best.

With these random hints I have not a fault to find with the plan proposed of heating such pits with tanks of hot water, or conduits as they are termed. So far as economy is considered I think that hot-water pipes would be cheaper than the brick tank, surrounded with brickbats and clinkers as previously stated lately. Mr. Fraser, of Luton Hoo, has just so furnished a range of houses, and he says he now considers the plan far preferable to a chamber. He has both top and bottom heat at will. Nevertheless, I have no doubt that the brick-cemented conduits covered with slate will answer well. If the slate is put on close, however, there will be no moist heat from them; and Cucumbers, and Melons too, when growing delight in a rather moist atmosphere, though the latter must be ripened in a rather dry one. Our correspondent says nothing of top heat. Either part of the slate should be exposed, or openings left for the heat to rise at once into the atmosphere. This could be done with drain-tiles set upright, with plugs to be opened or closed at pleasure, or a space of 2 inches might be left all round between the soil and the wall. If the slate were covered with 3 inches or 4 inches of clinkers, surmounted by gravel just beneath the soil, when a moist heat was wanted at bottom and top all that would be necessary would be to pour some water through these openings. When the moisture was wanted for the bottom alone, as in ripening Melons, these openings could be closed. A tank of about 4 inches deep would do: all above that, and especially 5 inches, is labour and expense thrown away.

Nothing answers better than dung and tan for Cucumbers and Melons where these are abundant, capable of being got when wanted, and where labour is abundant, and unremitting attention can always be given. With hot water the care required is

less, the labour less, much less, and a great advantage every way where fuel is not extra expensive. Without something like undue partiality I could hardly say where I have seen fine crops without any assistance from tan or stable-manure. The difficulty would be to mention where I had known them fail under general care and attention. The case alluded to would most likely have shown the same symptoms under hotbed culture. It is possible to have too much of such a good thing as extra luxuriance: a little less heat and less moisture, and more pinching and stopping, might palliate the evil, and make them fruitful. With common care you need not fear such a result.—R. FISHER.]

ROYAL HORTICULTURAL SOCIETY.

JUNE 23RD.

FLORAL COMMITTEE.—There was not so much brought forward at this Meeting as one might have supposed there would have been. An interesting discussion took place on a point which, as it concerns the general interest of horticulture, may be alluded to here. It had been felt that the Committee was placed in a false position, inasmuch as, being the recognised tribunal for judging novelties, it found itself on the days of the great exhibition put aside, and probably its decisions reversed, by the Judges appointed on those days, who, doubtless, would act according as their experience and knowledge dictated, but who as distinct from the Committee could not, of course, act in unison with them. A memorial was therefore unanimously adopted, praying the Council that six members should be selected by the Committee, three for new plants, and three for florists' flowers, who should be nominated as the Judges for those things on the days of the great exhibitions, and that any plant or flower which had obtained a Certificate or Label of Commendation from the Floral Committee, might have such award appended to it if shown on those days, but would not again be noticed. This, if acceded to, of which we do not entertain any doubt, will, we think, meet all requirements, preserve the independence of the Committee, uphold it as the recognised authority of the Horticultural Society on such matters, and satisfy the introducers or raisers of novelties.

Mr. Thompson, of Ipswich, exhibited *Nemophila atomaria maculata*; also three varieties of *Rhodantha*, called *latro-sanguinea*, *maculata*, and *maculata alba*. The former was obtained among the limestone rocks in the neighbourhood of Champion Bay, Western Australia. *Maculata* in appearance is a robust form of *Manglesi*, which was discovered by Capt. Mangles, at Swan River. For this a First-class Certificate was awarded. The white variety, which promises to be exceedingly pretty, received a Label of Commendation; but all, owing to the want of the day and the consequent absence of sunlight, did not display their charms to so much advantage as they would have done had the day been brighter.

Mr. Cant, of Colchester, again sent blooms of the magnificent Tea Rose exhibited at last Committee meeting. While acknowledging its undoubted merits, it was felt that with so doubtful a parentage it would be hardly wise for the Committee to take its merits into consideration. That it was not *Aurora* is very clear; and hence Mr. Cant will introduce it to the Rose-growing world, we believe, under the name of "*L'Enfant Trouvé*," for it is in truth a foundling.

From Mr. Bragg, of Slough, came a box of Pinks, among which a red one received a First-class Certificate. Its name is *Lady Rokeby*. He also sent a *Heliotrope* named *odoratissimum*, but though richly deserving the name, it was not considered of sufficient merit to warrant an award. Also, a box of Hunt's Sweet Williams, some of which were very pretty. This fine old English flower merits a wide cultivation.

Mr. Turner, of Slough, sent three Pinks—*Dr. Maclean*, *Delicata* (seedlings of his own), and *Jessie*, a seedling of the Rev. Geo. Jeans, of Alford's, raising. To the second of these, a light-coloured flower of very fine properties, a First-class Certificate was awarded.

Messrs. Downie, Laird, & Laing sent three *Philoxes*.

Mr. Bull, a collection of plants, containing *Petunias*, and other novelties. Amongst these were *Coleus Verschaffeltii*, *Cupania Pindaiba*, an elegantly pinnated shrub from the Brazils, and *Cobaea scandens*, variegated, for all of which Labels of Commendation were awarded.

A large, double-flowered *Fuchsia* of excellent properties, exhibited by Mr. G. Smith, called *Mammoth*, received a First-class Certificate, as did also *Dracaena ferrea variegata*, from the Society's gardens.

Two summer *Philoxes* from Messrs. Downie & Co., one white, named *Reine Blanche*, and another, *Lydia*, a French white, with purple eye, were Commended.

A collection of *Achimenes* and decorative plants was also forwarded from the gardens of the Society at Chiswick.

And now before concluding this notice, I would desire to refer to a point of some interest to Rose exhibitors, and that is, the

SIZE OF THE BOXES IN WHICH ROSES OUGHT TO BE SHOWN.

Mr. Eyles is naturally anxious to have all his arrangements as complete as possible, and he finds a very great diversity of opinion and practice on this point, which occasions somewhat of inconvenience when the day arrives. He is not desirous of coming to any decision himself upon the point; but as the size of *Dahlia*-boxes has been fixed, he thinks it desirable that Rose growers should adopt one uniform size also. He, therefore, invites all Rose exhibitors to meet on the day of the grand Rose Show, July 10th, and discuss the matter amongst themselves, and we are sure that a desire so kindly intended will meet with the co-operation of all those personally interested in it. Should any be unable to attend, Mr. Eyles will be very glad if they will be kind enough to express to him their views on the subject. There is another point which I think may very fairly be discussed either then or at some other time—the showing of three trusses of bloom instead of one. If the object to be gained by an exhibition is that of displaying the flowers to the best advantage, I am rather inclined to think that this will be better effected by one truss than by crowding three together; and none but very large growers for sale (and not even they this year) can exhibit three hundred bunches of Roses. One hundred blooms would, I believe, be more effective, and enable a larger number to compete.—D., Deal.

On the morning of the 24th ult., the Gardens of this Society at South Kensington were visited by Her Majesty, who some time ago intimated her intention of honouring the inauguration of the Society by planting a tree with her own hands. The day originally fixed for the ceremony was the 5th of June, but Her Majesty was unable to attend on that day; and though a tree, as we detailed at the time, was then planted by the Prince Consort, Her Majesty did not relinquish her intention, but visited the Gardens for the purpose on the 24th. She was attended by H.R.H. the Prince Consort and Princess Helena, Count de Fladres, Lady Bruce, &c., and arrived a little before ten o'clock. She was received at the entrance by the following members of the Council:—The Earl of Ducie, the Bishop of Winchester, Mr. C. Wentworth Dilke, Dr. Lindley, Mr. John Clutton, Mr. J. Lee, Mr. H. T. Hope, Mr. H. Pownall, Mr. James Veitch, and Mr. Wrench. Mr. Blandy, one of the Vice-Presidents; Mr. Wilson Saunders, Treasurer; and Mr. Godson, one of the members of the Council, were unavoidably absent.

In passing through the council-room Her Majesty paused to examine some statues placed there; from thence she passed up the long eastern arcade, and then crossed to the north-western corner, exactly opposite to the spot where His Royal Highness the Prince Consort planted the tree on the former occasion. A beautiful *Wellingtonia*, presented by Messrs. James Veitch and Sons, was ready placed here. A handsome spade was handed to Her Majesty by Mr. Dilke, and she proceeded to shovel in several spadefuls of earth, much to the interest and delight of the small circle surrounding the spot. She then looked round, apparently with some hesitation as to whom she should hand the spade; and after a moment's consideration, with a gracious smile, presented it to Mr. James Veitch, jun.

The party then proceeded to the conservatory, where Her Majesty seemed much pleased with the elegance and proportions of the building. Her Majesty here honoured Lady Ducie with an interview, having observed her ladyship among the company present, continued some time in conversation with her, and took special notice of Lord Moreton, a fine boy about eight years of age, her ladyship's eldest son.

On leaving the conservatory, the Royal party proceeded down the centre walk, and entered the grounds where the new Great

Exhibition building is in course of erection. After a short time spent here, during which Captain Fowke and Mr. Cole, the architects of that building, gave explanations, she returned to the Gardens, from whence she took her departure.

In consequence of Her Majesty's mourning the visit was strictly private, there appearing not to be more than 100 persons present.

After Her Majesty's departure, His Royal Highness the Prince Consort remained a considerable time in conference with several members of the Council upon the various works still in progress.

EFFECTS OF LAST WINTER UPON PLANTS IN ENGLAND.

(Continued from page 235.)

LANCASHIRE AND CHESHIRE.

I HAVE read with great interest the papers that have appeared in THE JOURNAL OF HORTICULTURE on the above subject. The record is a melancholy one, but not useless, because it teaches us gardeners useful lessons to guide us hereafter in providing means to shelter our favourite trees, shrubs, and flowers, and also vegetables from a recurrence of such a visitation. It will also serve as a guide what to select to plant in peculiar localities and soils—kinds that will, from recorded experience, be able to live through the roughest weather and most severe frosts. Lamenting as all lovers of the garden must do, the great losses that have occurred in what was expected to be quite hardy in this country in regard to late introductions, it is some consolation to find that even our native trees and shrubs—such as the Oak and our favourite Holly, have been more or less, according to locality, injured by the last severe visitation of hard weather that has just passed by.

Every writer on this subject agrees that the weather of last year had a peculiar effect upon vegetation, inasmuch as the winter found even, comparatively speaking, the hardiest shrubs, &c., in as bad a state as possible, to withstand and live through the exceedingly hard frost that followed. Sunless days and continued wet weather through the autumn months kept them growing late and prevented them from consolidating wood, or, as we term, ripening that wood: hence the spiral vessels were distended with watery juices or sap, and the extreme hard frost froze that crude sap so much that it burst the fine tissues and caused mortification, and in too many cases death ensued. This state I find was more severe in low-lying localities in rich soils, than in high grounds and poorer soil. In such low situations the beautiful *Araucaria imbricata* has quite perished in the north of England; but on hills and sandy soils close adjoining many have escaped uninjured, and are now pushing forth fresh shoots vigorously. There is comfort in that, for I and most of my fellow gardeners will rejoice that this truly ornamental tree need not be banished from our plantations.

I have for several months been taking notes on the state of the trees, shrubs, &c., in various gardens in this neighbourhood, observing whenever I could the kind of soil, and the locality as to elevation of each place, I now proceed to add my notes of information to those of others that have preceded me; and I trust many others of our readers will go and do likewise, and give the result of their observation. I should very much like to know, for instance, how the noble *Araucaria imbricata* at Lady Grenville's seat near Maidenhead, has stood the ordeal. It is, I believe, the finest specimen in Great Britain, and truly sorry I should be to hear that it has been injured in the least. I expect it has stood well, for it grows on rather high ground and poorish moor soil.

The first place I visited after the winter had departed was Burnage Hall, the seat of S. Watts, Esq., about four miles from Manchester. The place stands on rather flat ground, but sheltered by trees from the north; the soil is strong loam, sub-soil clay. Here I found nearly all the standard Roses killed, a very few were alive but not very promising. *Araucarias* killed also, excepting some low branches that had been covered with snow. Deodars leafless, and the ends of the shoots killed; like the *Araucarias*, all the shoots that had been covered with snow had escaped, and even the leaves were as green as ever. *Aucubas*, cut down to the ground. Common Laurels, ditto. Portugal Laurels, ditto. Many striped Hollies had lost their leaves, but would recover. *Rhododendrons* ununinjured, excepting

the scarlet varieties. Peach trees on the open walls had all the young shoots destroyed. In the kitchen garden all low-growing vegetables—such as Cabbages, Lettuces, &c., having been covered with snow looked fresh and green; but Brussels Sprouts and late Broccoli were killed. One piece, however, of a dwarf Broccoli escaped by the stems having been earthed up quite to the heart of the plants. This method I admired much from the fact that it was successful. It is worthy of imitation.

S. Shorrocks, Esq., Ashton Lodge, Ashton Mersey, Cheshire, five miles from Manchester. Though situated on a gentle eminence and a dry, light soil, yet the season has been severe in its effects here, especially to the Rose tribe, of which there had been a very good and large collection. The dwarfs, however, whether on their own roots or on the Manetti stocks, were generally alive, as were also the following standards:—Jules Margottin, Lord Raglan, *Enfant du Mont Carmel*, General Simpson, Prince Léon, Auguste Mic, and the Briar Harrisonii, which I find quite hardy everywhere. This is a very brief list of quite hardy kinds as standards. The rest of the standards were all dead. Hollies all lost their leaves. Portugal Laurels (common and *Aucubas*), all killed to the ground. *Pinus excelsa*, safe. *Araucarias*, browned. Deodars, leaves killed, but the main stems alive. *Pinus austriaca*, as green as a leek, it is hardier apparently than the common Scotch Fir.

The Peach trees here have suffered also, their young shoots being killed, and even the young shoots of standard Pears have received considerable damage. Fruit, indeed, throughout the whole district will be scarce this season. At this place I observed that the Vines have been injured also by the winter, the wood being in such an immature state.

From there I wended my way to Sale Bank, the seat of S. Roebuck, Esq. This place is situated on a flat district of several miles wide, the soil is chiefly a kind of sandy bog on a wet gravelly bottom. Though the whole extent has been thoroughly drained, yet from low-character trees and shrubs that are not quite hardy, are liable to suffer from severe winters. I was not, however, prepared to see such an utter destruction as I witnessed there. It is now rather more than twenty years since we had so hard a frost as we had this last year; but even then the evergreens did not suffer to nearly such an extent, because the summer previous had been more favourable, and, consequently, the young shoots were better ripened.

At Sale Bank fine trees of *Araucaria imbricata*, from 15 feet to 20 feet, are now quite dead; Portugal Laurels, immense bushes, in a similar condition, but will push again from the bottom; *Juniperus recurva* quite dead; several lofty *Cryptomeria japonica*, 20 feet high, much browned, but may recover; *Cedrus deodara* in as sad a state; *Cedrus Libani* browned; Roses, standard, all killed, with the exception of Austrian Briar, *Harrisonii*; seedling varieties of scarlet *Rhododendrons* quite killed.

The following alive and as fresh as possible:—Irish Yew, *Pinus excelsa*, *Pinus austriaca*, fine trees; *Rhododendrons* of the Catawba breed are quite safe, indeed better in health and foliage than the common hardy ponticum and varieties.

Abney Hall, Sir J. Watts' seat, near Cheshire, seven miles from Manchester. This place stands on a gentle eminence, and is pretty well sheltered from the north. The soil rather strong, but well drained, yet, notwithstanding that, the *Araucarias* are nearly all dead; they had been splendid specimens, but cannot possibly recover. The Deodars are recovering, some better than others, showing that seedling individuals of the same plant are more hardy, then such ought to be propagated from; *Wellingtonia gigantea* a little injured, but nothing to signify. I do think this beautiful tree will bear our severest winters.

Pinus insignis, *P. cembra*, *P. excelsa*, and *P. austriaca* uninjured; Irish Yews, uninjured; *Juniperus virginiana alba*, also safe; *Abies Cephalonica*, much browned. Here is an avenue of this beautiful upright-growing tree, and very nice it looks after such a hard frost. The common Laurel bank which was such a fine feature here is cut down to the ground, and also all the creeping Roses trained to the walls and arbours are dead down to the ground, whilst other Roses on their own roots are pushing strong. The young shoots on Peach and Nectarine trees all killed; Mr. Smith has had them cut out, and fresh shoots have started from the old wood. *Rhododendrons* unscathed, but the late frosts in May have injured the young shoots; there is little bloom on them hereabouts generally this year. The hardy Ghent Azaleas have suffered from the same frosts.

Tatton Park, the Right Hon. Lord Egerton's. This noble

place has the extensive ground on undulating surfaces, and the soil sandy peat in many parts. In front of the house, some years ago, an avenue of *Araucarias* was planted with a row of *Deodars* behind them; some of the *Araucarias* are alive and pushing young shoots, whilst others are much injured and will never make handsome trees; the *Deodars* also are injured, but may recover. In the pinetum *Abies Douglasi* is safe, also *A. pinsapo* and *cephalonica*; *Fitzroya patagonica* is quite dead; *Picea nobilis* is quite safe, not a leaf browned; also *Pinus cembra*, *excelsa*, *neglecta*, *ponderosa*, *Lambertiana*, *Sabiniana* are all right. *Taxodium sempervirens* slightly injured; standard *Roses* all killed. In more common things, such as *Laurels*, *Hollies*, *Yews*, &c., this place has not suffered so much as others.—T. APPEBY.

(To be continued.)

CULVERKEYS.

CAN you inform me what particular wild flower is that which is mentioned in Walton's "Angler," under the name of Culverkey? It is classed with Cowslips, Ladysmocks, and other spring flowers; and in a song by John Davors quoted in "The Complete Angler" it is called "azre Culverkey," thus denoting its colour.—JOHN J. LIGHTFOOT.

[It is a curious fact that the word *Culverkeys* occurs nowhere else, that we are aware of, except in Walton's "Complete Angler," and in John Davors' song, which is there quoted.

The latter poet writes thus—

"Purple Narcissus like the morning rays.
Pale Gander-grass and azure Culverkeys."

Now the Gander Grass is, without much doubt, identified as the Stander Grass or *Satyrion*, and it is worth remarking that in Dutch this plant is called *Kullekenskruid*; which, though so very different, yet is the nearest name of a plant to Culverkeys that we know.

In another passage, Walton says, "Looking down the meadows I could see a girl cropping Culverkeys and Cowslips to make garlands."

From these two passages we gather that the Culverkey was azure, or blue flowered, bloomed at the same time as the Cowslip, and grew in meadows. We may conclude that it had long stalks, or it would not have served for garland making. Now, the wild Hyacinth, or Harebell, (*Hyacinthus non-scriptus*) agrees with these characteristics; but no authority we know ever called it the Culverkey. Can any of our readers inform us of its being so called in any portion of the British islands, or of any other flower that is so called?

It has been suggested that the Columbine is the flower meant by Davors and Walton, because culver is the old Saxon name for a dove, and is a synonyme of columba, from which the name Columbine is derived; but none of our old herbalists apply the name of Culverkeys to it. The only one of them who approaches to such an application is Lyte who, in his translation of Dodon's "Herbal," published in 1578, says, "It is called in English Columbine, of the shape and proportion of the leaves of the floures, which do seeme to expresse the figure of a Dove or Culver." But the Columbine does not grow in meadows, nor is it found wild so commonly or so abundantly as to be a garland flower. The best guide would be the discovery of some locality where the name of Culverkeys, or a name like it, is still applied to a flower.—EDS.]

WHEN IS WHEAT FERTILISED?

"When the Royal Agricultural Society talk about the Wheat being in blossom they are just one month behind Nature.

"The Wheat is in full flower, and the seed is fertilised while the ear is yet in the folds of the sheath, before the Wheat is in ear."—(In Mr. Beaton's reply to Mr. Darwin's letter.)

I IMAGINE that Mr. Beaton's dictum on the subject of the Wheat blossom has by this time raised many a laugh at his expense. To my surprise no one has yet contradicted it in your Journal; and no doubt many of your readers, in their innocence, have been for some time past comforting their neighbours, the farmers, with the information which they have from such an unquestionable authority, that when their Wheat has come into ear its blossom is safe, and has been so for a month previously.

Mr. Beaton is entirely in error. When the Royal Agricultural

Society talk of the Wheat being in blossom, they are *not* just one month behind Nature; and the Wheat is *not* in full flower, and the seed is *not* fertilised while the ear is yet in the folds of the sheath before the Wheat is in ear.

When the ear is rising out of the sheath the whole of the anthers are green and immature. When it is completely clear of the sheath the blossoming process commences at the upper part of the ear, and the mode in which this takes place is probably as follows:—The husk opens for a brief interval, probably for a few minutes only, when the anthers are mature; they then rise on their stamens, split and distribute their pollen, and the husk closing again immediately leaves them hanging outside.

The process of blossoming and fertilisation commences, as I say, at the upper part of the ear, when it has risen clear of the sheath, and gradually extends downwards, so that a fertilised corn may commonly be seen on the ear with its immediate neighbours unfertilised, their anthers being quite green and nearly sessile, and the ear will have grown upwards to its full height before the blossoming is quite completed.

The farmer may yet "congratulate himself" with some reason, "if the weather is propitious," for he knows when his Wheat is in blossom better, apparently, than Mr. Beaton.—H. C. K.,
—*Rectory, Hereford.*

[This is just what I deserve. But here is room for the spirit of inquiry at last, and let us hear of no disciples of this or that writer or thinker, but let all gardeners, at least, try and learn for themselves. And there is another chance. There is a tremendous mistake somewhere in my last letter on crossing in answer to Mr. Darwin, and I shall give a hydrometric belt to any young gardener who will point out that error, and let us hear of it before the end of next August.—D. BEATON.]

CARNATIONS AT CHRISTMAS.

THERE would be great difficulty in getting common Carnations to bloom in December and January in a greenhouse. But if you [our correspondent "ALL ANXIETY"], obtain what is called the Perpetual Carnations and Picotees which are being advertised at times in our columns, you will have no difficulty in the matter, if the heat of your greenhouse at that period averages from 50° to 55° at night.

Proceed thus:—If you have not such plants, obtain two or three dozen from a nurseryman. The plants will generally be small, and you would have had a better chance if you had obtained them in April. However, better late than never. These will generally be in small pots called 60's, and most likely showing a bloom. Cut all blooming-shoots off, and after gently disentangling the roots repot into six-inch pots, using light, rich, sandy loam, and place in a shady position until the roots begin to work freely. A few of these stronger plants may be placed in 16-pots or 24-pots, and potted very firmly. If that can be done before September all appearance of flowering-shoots until then should be stopped. These plants thus stopped and potted will generally throw up flower-shoots in October, which will bloom in the greenhouse in November and onwards.

We have done Anne Boleyn Pink and others on the same system, and the plants bloomed better than when forced.

The above is the best method, perhaps, with a beginner. If you had a little practice this is the plan we would suggest for next season, with the full confidence that you will succeed beyond your expectations. Get by layers, or cuttings, young plants potted in small pots before October. House them in a dry, cold pit or a cool greenhouse in winter. In March or April nip out the terminal bud of the young plant, to arrest anything like flowering. This will incite the buds in the axils of the leaves to shoot, and you will soon have a bushy little plant instead of one with a single shoot. Choose an open piece of ground, and dig and aerate it well. Make up a compost of lumpy fibry loam, a little leaf mould, and very rotten dung, and in April turn out the young plants with a good shovelful of rich sweet compost round each ball of roots, the roots previously having been a little disentangled and the new soil pressed firmly about the roots. Such plants should stand in rows 30 inches apart, and 18 inches, or, at least, 15 inches from each other in the row. These plants must be kept clean, and well watered as wanted during the summer. They will evince little disposition to bloom; but if any spires of flower-stalks show before the middle of August they

should be nipped out. The bushy plants will begin to show signs of throwing up flower-stalks by the end of August or the beginning of September. Shortly after this they should be carefully taken up and repotted, using pots in proportion to the size of the plants and the ball of the roots you can obtain. Such tiny plants in April will frequently, so managed, require a twelve-inch or fourteen-inch pot in September; but some may be small enough to go into a six-inch or seven-inch pot. The best way for lifting the plants is to insert a light steel fork all round, and then lift it with one fork on each of the opposite sides. The barrow of earth and the pots should all be close to the plants, so that the ball of earth and roots may not be shaken more than is absolutely necessary before it gets into the pot. The pot should be no larger than just to hold the ball and roots, with a little rich, light loam to fill up all the vacancies firmly, and a fresh surfacing over all, and that too made pretty firm. A little stake or two may now be necessary to steady the shoots. For ultimate fastening nothing is neater than twisted wire stakes, the stems are kept secure in the volutes without any tying. After being potted give a good watering, and keep the plants from the mid-day sun until all danger from flagging is over. When the roots have recovered themselves expose the pots fully, and get them under glass by the middle of October. All through the winter and spring such plants will be in bloom, if the temperature is not very low and the weather is not more than ordinarily destitute of sunshine.

We followed the above plan with great success with Perpetual Carnations and Picotees for some years, until their room was taken by something else; but we will have another trial of them, perhaps next year, if we get suitable plants. We also found that if plants were obtained from cuttings early in summer, potted, stopped, and kept in four-inch pots in winter, and were without any further stopping runned out in flower-beds in April, that they produced dense masses of bloom until frost came. We began to tire even of such beauties; but "ALL ANXIETY'S" inquiries have brought back a portion of our old love for them, and we even think of a place where we imagine such a bed would have looked beautiful.

R. FISH.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

On Wednesday last the eighteenth annual festival of the Gardeners' Royal Benevolent Institution was celebrated at the London Tavern, when a large assembly of its friends and supporters sat down to dinner, under the presidency of the Rev. J. M. Bellev. Among the company we observed Sir Arthur Buller, M.P., Mr. E. M. Ward, R.A., Mr. Benjamin Webster, J. E. C. Koch, Esq., Mr. E. Yates, General Ramsay, Captain Lees, Mr. Abel Chapman, Mr. Robert Wrench the Treasurer, &c.

The room was, as usual, magnificently decorated with plants and flowers, and the tables were tastefully furnished with bouquets. Behind the Chairman was a splendid bank of Geraniums sent by Mr. Charles Turner, of Slough.

The usual loyal and patriotic toasts having been disposed of,

The Chairman proposed as the toast of the evening, "Success to the Gardeners' Royal Benevolent Institution." He said that Oliver Goldsmith, in one of his most delightful essays, had said that Englishmen were of that peculiar character that they could do nothing without eating [laughter]. If a church was to be built, or an hospital to be founded, they must eat upon it, and thereby the object they had in hand prospered. There could be no doubt that they (Englishmen) were an eating-people; and, despite all that had been written (S.G.O.) to the contrary, it was hard to suppose that when one had eaten his own dinner he should not feel inclined to help to a hearty meal those who had not had that blessing [hear, hear]. It was the opinion of some persons that a tea party would do just as well, and that they could obtain the flow of benevolence from a decoction of an article purchased at No. 1, St. Paul's Churchyard [great laughter]. But in his mind the teapot was associated with scandal, while, on the contrary, there was an old proverb, in which he fully agreed, "*In vino veritas*—he would read "*charitas*" [hear, hear, and cheers]. When they had themselves eaten a good dinner they felt like the Chinese Emperor, who, after a similar enjoyment, gave leave to the whole world to dine; or like the civic dignitary, who, after he had feasted upon his turtle, returned home, and said, "If any person has a little bill to be done, now is the time" [great laughter.] In anticipation of

the present occasion, he had been studying the philosophy of public dinners, and trying by the aid of the "Corahill" and "Temple Bar" Magazines, to discover the connection between gastronomy and the ethics of charity, and he had come to the conclusion that *post prandial* benevolence arose out of a pity for those who had not eaten their dinner [hear, hear]. They knew that, by the laws of gravitation, they as full buckets would pour the empty buckets to the surface [hear, hear, and laughter]. It was for those empty buckets he now appealed to them [hear, hear]. They themselves were the full buckets. He was happy to find that he had not to come before them with a lengthened visage, deploring a healthy debt, and there he was stumped out of a very good piece of oratory. He had not that luck. He would ask them to look at his friend, Mr. Wrench, the Treasurer, and see how unruffled and how benign was his countenance, and then to look upon the satisfied countenance of the Secretary, and they would find that both mother and child were doing well [laughter]. They could all recollect their younger days, when they came home for the holidays with a good report, and when after dinner they were admitted to the dessert and received the aruncular patronage of a sovereign slipped into their hands, and the pat upon the back, with the injunction to go on and prosper. The Gardeners' Institution was the young boy come home for the holidays, and the company was the aruncular relative who would pat it on the back, slip the sovereign into its hand, and say, "Well done, you gardener boys, go on and prosper." In 1838, the Institution was first established, but at first it did not do very well; but in 1842—they, as gardeners are always fond of doing—they turned over a new leaf, and had now £5,100 invested in the Three per Cents. Their last year spent £1,117, and had at their bankers the nice little bulbous root of £442 [hear, hear], which would be invested in stock, which was, he believed, the favourite flower of the Institution. They had had fifty-one pensioners—viz., thirty-one males and twenty females, and they would soon add seven others. It was on behalf of these honest and sober men he appealed to them, for sobriety and honesty were the great social characteristics of those who were employed in horticultural pursuits, as might be gathered from a reference to the list of their pensioners, the youngest of whom was sixty-two; and there was one who was nearly four score and ten, and all of them were fit objects for any man's charity. Shakespeare made the gravedigger in *Hamlet* say, that most ancient gentlemen were gardeners and gravediggers; but he would let the gravediggers drop. Gardening, certainly, took them back to Paradise, and it still afforded them all that delighted either eye or the body, and now—

"From yon blue heavens above us bent,
The grand old gardener or his wife,
Smile at the claim of long descent."

And in the contemplation of horticultural beauties, we realise something of the glory when the Creator placed him in Paradise, and said, "All is very good." He left the object of the charity in their hands, assuring them that God loved those men who gave freely.

A subscription of upwards of £200 was the response to this appeal.

The musical arrangements were under the direction of Mr. Henry, assisted by Miss Cole, Mr. Fielding, Mr. George Ford, &c.

DESTROYING CATERPILLARS WITH WHITE HELLEBORE POWDER.

WHILE reading a very interesting article in your Number of June 25th, I noticed a sort of recommendation of the use of Hellebore to destroy caterpillars on Gooseberry bushes. A short time back a similar recommendation appeared in another gardening periodical, when it struck me that the poison of Hellebore was too active a one to be safely used. I mentioned my doubts to a chemical friend, who said, "Yes, the active principle of Hellebore, veratrin, is of the same class as strychnine. I quite agree with you, the remedy is very far from safe."

When devising Gishurst Compound, I took for granted that only agents might be used having the power to destroy insect life, without being in any shape poisonous to man. If the great gardening authorities will sanction the application of such poisons as Hellebore, preparations to get rid of insects will require but little skill to compound them.—GEORGE WILSON, Belmont, Vauxhall.

[It is quite true that the poisonous principle in White Helle-

bore so destructive of caterpillar life, is of the same class to which the poisonous principle of the nux vomica belongs, and that if either of those poisonous principles, veratrin and strychnine, were swallowed pure and in sufficient quantity, they would be fatal to human life. But there is no danger in dusting the leaves of a Gooseberry bush with either the powder of White Hellebore or of nux vomica. Neither the leaves nor the fruit absorb it, and if the wind and rain do not remove every particle, the garden syringe effects a clearance immediately. — EDS. J. OF H.]

BLOOMSBURY FLOWER SHOW.

(Communicated.)

FLOWER Shows for poor people are no strange thing in the country, where every cottager has his slip of garden, and every garden has plenty of sunshine and fresh air; but it might well be doubted whether the crowded garrets and narrow windowsills of our London alleys could be turned into nurseries for flowers. The experiment, however, has been tried in St. George's, Bloomsbury, and with almost unexpected success.

Last year there was a Show confined to the inhabitants of one of the more highly favoured and better visited of the poorer districts of the parish: this year the Exhibition was extended to the whole parish, and was held on Wednesday, the 19th, in the National Schoolroom. But there can be little doubt that if the Show is repeated next year a wider scene of operations will be needed, which may, perhaps, be found in one of the many squares in the parish.

The exhibitors had been divided into several classes, according to the districts in which they lived, so that the inhabitants of the smaller courts might not have to compete with those whose airier neighbourhood and better means gave them an overwhelming advantage in the contest. All the classes were well represented, both in number and the quality of their plants, with the exception of the "Mewses," which sent but a small contribution. The favoured district above referred to showed the good effects of last year's experience, and appeared to give great satisfaction to the speakers in the evening. But the most beautiful class was that devoted to the "domestic servants," some of whose plants would have done credit to any greenhouse.

At seven o'clock, when the prizes were given away by the Rector, the schoolroom was crowded to excess with members of all ages and classes; and at this time the gentleman who acted as Judge was literally besieged by applicants, all commending to his notice specimens exhibited by themselves or some special protégé, which "he must have passed over by mistake;" and if some of the fair ladies present were rather eager than judicious in expressing their dissent, it was delightful, except, perhaps, to the Judge, to see that they had not attended for the purpose of bestowing an apathetic patronage, but because they took a real interest in the business of the day.

The winner of the first prize in every class received a book on "Window Gardening for the Many," of which several copies had been sent as a present by the Editors of THE JOURNAL OF HORTICULTURE. This gift exactly supplied the only want that was felt. The exhibitors had shown that they had the will to cultivate flowers in their humble dwellings; but in some instances it was plain that they required advice to teach them the way. These little books were not only an addition to the attractions of this year, but, probably, a great assistance towards the success of the next.

[We are well pleased to find that our very small donation was so appreciated, but still more pleased to find that flower-culture under the greatest difficulties—much smoke, little sunshine, and less fresh air—is clung to so earnestly and successfully in the alleys and streets of Bloomsbury—plants in tea-pots even in Drury Lane courts evince that such a clinging to the love of flowers pervades even darker localities, and we hope other associations, following the example of Bloomsbury, will cherish that love. It is one of the best agents in strengthening the day-side of our nature, and in diminishing the power of its night-side.

We hope that the next Bloomsbury Exhibition may be held in Russell Square, under a marquee upon its grass. The denizens in that Square need not fear that any injury would be inflicted upon the trees or flowers growing within their palisaded enclosure; for the authorities at Kew and the Crystal Palace will bear testimony in addition to our own that no such outrages are perpetrated in their gardens, notwithstanding the unrestrained admission to them of the working classes. — EDS. J. OF H.]

HARDY ORCHIDS.

IN THE COTTAGE GARDENER for September 25, 1860, Mr. Appleby gave an excellent list of Hardy Orchids. Could he take the trouble of improving the list by stating which of them are worth growing for their beauty, and which are only botanical curiosities? And could he further say where they could be procured? I grow a few, and should like to add to their number, but cannot find any nurseryman who grows above two or three. My list contains *Ophrys aranifera*, *Epipactis palustris*, *Cypripedium spectabile*, *C. album*, *Ophrys apifera*, *Orchis maculata* and *pyramidalis*, *Cypripedium pubescens*, and *calceolus*, all perfectly hardy and beautiful. The *Cypripediums* have been in especial beauty this year.

I fancy many of the greenhouse Orchids might be treated as hardy, and would experiment upon them, if they were not so expensive. — H. N. E.

[In addition to the species you already possess you should try and get the following:—*Aceras anthropophora*; *Ophrys fucifera*, *O. muscifera*; *Cypripedium acaule*, *C. arietinum*, *C. guttatum*, *C. ventricosum*; *Neottia spiralis*, *N. nidus-avis*, *N. cernua*; *Habenaria alba*, *H. albiflora*; *Orchis ciliata*, *O. mascula*, *O. fusca*, *O. palustris*, *O. saccata*, *O. undulata*, *O. latifolia*, *O. morio*, *O. militaris*, *O. ustulata*; *Epipactis latifolia*; *Gymnadenia conopsea*; *Spiranthes aestivalis*, *S. autumnalis*; *Goodyera repens*. These are all beautiful, not merely botanical curiosities as you express it, though we think the whole of Mr. Appleby's list in the "Orchid Manual," just published at our office, worthy of cultivation. Your query as to where they can be procured is answered also in the same work. Any nurserymen possessing any hardy species should advertise them. There are a few species in the Regents' Park Botanical Gardens; also at Kew, and some in the Botanic Gardens at Glasnevin, near Dublin, and in the Botanic Gardens at Belfast; but whether any of these gardens have any duplicates to spare we do not know. Some of the hardy *Cypripediums* are in M. Van Houtte's nursery at Ghent, in Flanders. We are glad to find any of our readers are taking an interest in, and cultivating these singular and beautiful plants.]

ENTOMOLOGICAL SOCIETY'S MEETING.

THE June meeting of the Entomological Society was held on the 3rd inst., the President occupying the chair.

Mr. Bond exhibited on behalf of the Rev. Joseph Greene, two British species of Pug Moths, *Eupithecia tripunctata* and *E. trisignata*, not hitherto recorded as natives of this country, and two remarkably large male specimens of *Eunomos illunaria*, the early Thorn Moth, taken at New Rath Bridge, in the county of Wicklow.

General Sir J. B. Hearsey (recently returned from India, where he has served his country in the most gallant manner for more than half a century, and where he has enlivened his military duty with the cultivation of the sister sciences of botany and entomology) exhibited some beautiful drawings of the transformations of Indian Lepidoptera, executed from nature by the members of his family.

Mr. Solomons exhibited some rare and interesting British Coleoptera, including a fine example of *Myrmecodonia Haworthii*, one of the Rove Beetles, found in Penge Wood, Sydenham. Also, *Staphylinus latibricola*, and *S. fulvipes*, from Folkestone.

Mr. Frederick Smith exhibited a living individual of *Aspidomorphia sanete crucis*, a most splendid Indian species of Shield Beetle (Cassida), lately received by the British Museum, and the only one of several which reached this country alive, the brilliant metallic colours vanishing soon after death. General Hearsey observed that he had noticed this beautiful insect in plenty in the island of Salsette.

The President exhibited on behalf of Mr. C. Fenn, a singular male (?) example of the Emperor Moth (*Saturnia Carpinii*), the wings of which on one side of the body presented the coloration of the female of that species.

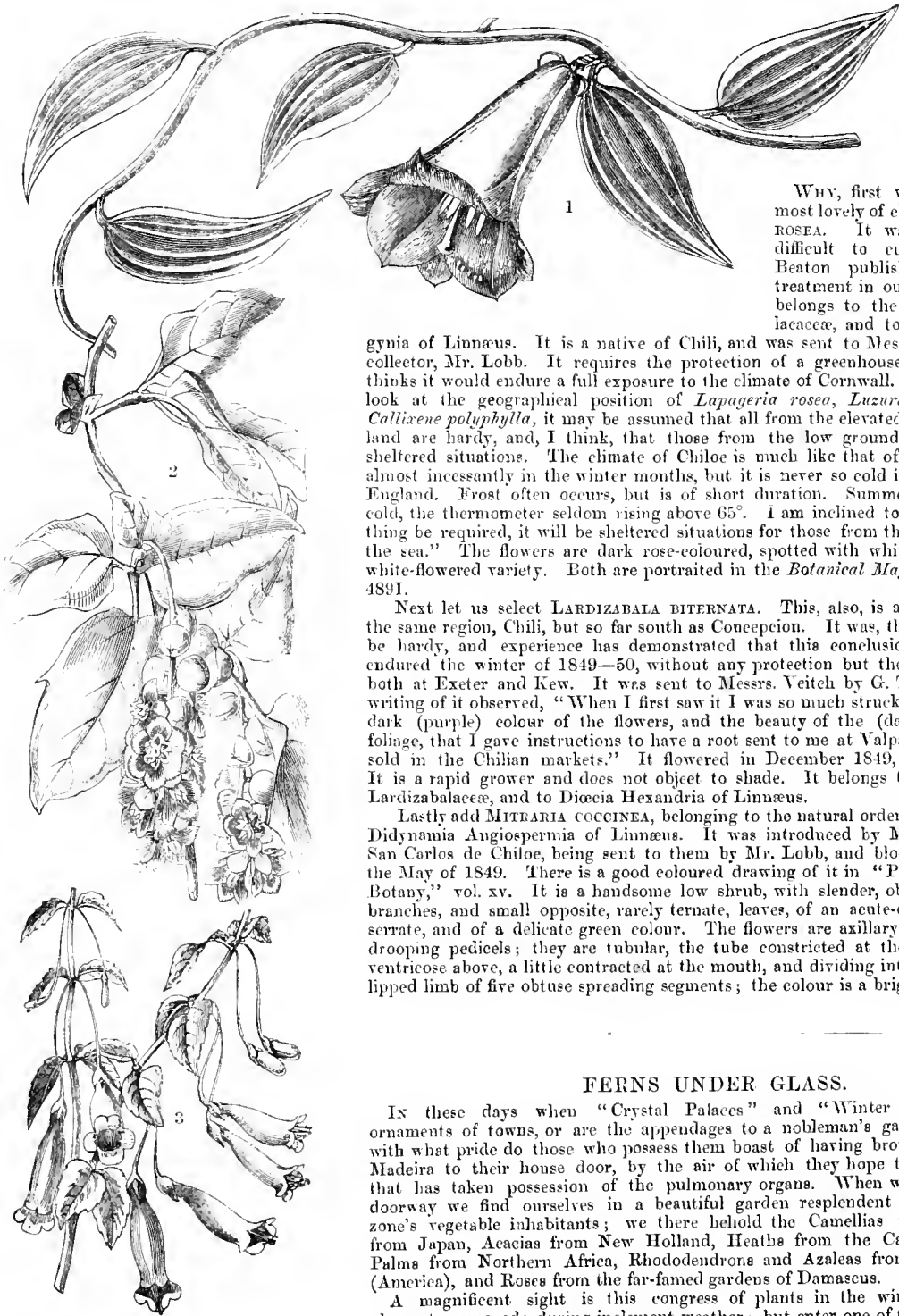
Mr. G. R. Waterhouse exhibited a series of specimens belonging to a small species of Weevil, of the genus *Centorhynchus*, allied to *C. sulcirostris* Gyllenhal hitherto confounded with that species, from which, however, Mr. Waterhouse pointed out the distinctions, and read a technical description of it under its name of *C. inornatus*.

The Secretary read a paper by T. V. Wollaston, Esq., on the Pitinidae of the Canary Islands.

SIX WREATHS OF FLOWERS.

WREATH THE FOURTH.

"What fashion will you wear the garland of?"—SHAKESPEARE.



WHY, first we will have that most lovely of climbers, LAPAGERIA ROSEA. It was considered very difficult to cultivate until Mr. Beaton published the mode of treatment in our 23rd volume. It belongs to the natural order Smilacaceæ, and to Hexandria Mono-

gynia of Linnaeus. It is a native of Chili, and was sent to Messrs. Veitch, by their collector, Mr. Lobb. It requires the protection of a greenhouse, though Mr. Lobb thinks it would endure a full exposure to the climate of Cornwall. He says, "If you look at the geographical position of *Lapageria rosea*, *Luzuriaga radicans*, and *Callixene polyphylla*, it may be assumed that all from the elevated parts of the mainland are hardy, and, I think, that those from the low grounds will only require sheltered situations. The climate of Chiloe is much like that of Cornwall; it rains almost incessantly in the winter months, but it is never so cold in winter as it is in England. Frost often occurs, but is of short duration. Summer, also, is wet and cold, the thermometer seldom rising above 65°. I am inclined to think that, if anything be required, it will be sheltered situations for those from the low grounds near the sea." The flowers are dark rose-coloured, spotted with white. There is also a white-flowered variety. Both are portrayed in the *Botanical Magazine*, *tt.* 4447 and 4891.

Next let us select LARDIZABALA BITERNATA. This, also, is a climber, and from the same region, Chili, but so far south as Concepcion. It was, therefore, expected to be hardy, and experience has demonstrated that this conclusion was correct. It endured the winter of 1849—50, without any protection but the shelter of a wall, both at Exeter and Kew. It was sent to Messrs. Veitch by G. T. Davy, Esq., who, writing of it observed, "When I first saw it I was so much struck with the singularly dark (purple) colour of the flowers, and the beauty of the (dark green bitermate) foliage, that I gave instructions to have a root sent to me at Valparaiso. The fruit is sold in the Chilean markets." It flowered in December 1849, at Messrs. Veitch's. It is a rapid grower and does not object to shade. It belongs to the natural order Lardizabalaceæ, and to Dioecia Hexandria of Linnaeus.

Lastly add MITRARIA COCCINEA, belonging to the natural order Gesneraceæ, and to Didymia Angiospermia of Linnaeus. It was introduced by Messrs. Veitch, from San Carlos de Chiloe, being sent to them by Mr. Lobb, and bloomed with them in the May of 1849. There is a good coloured drawing of it in "*Paxton's Magazine of Botany*," vol. xv. It is a handsome low shrub, with slender, obscurely tetragynous branches, and small opposite, rarely ternate, leaves, of an acute-ovate form, crenate-serrate, and of a delicate green colour. The flowers are axillary, and grow on long drooping pedicels; they are tubular, the tube constricted at the base, curved, and ventricose above, a little contracted at the mouth, and dividing into an obscurely two-lipped limb of five obtuse spreading segments; the colour is a bright light scarlet.

FERNS UNDER GLASS.

IN these days when "Crystal Palaces" and "Winter Gardens" are the ornaments of towns, or are the appendages to a nobleman's garden establishment, with what pride do those who possess them boast of having brought the climate of Madeira to their house door, by the air of which they hope to arrest the disease that has taken possession of the pulmonary organs. When we pass through the doorway we find ourselves in a beautiful garden resplendent with the temperate zone's vegetable inhabitants; we there behold the Camellias from China, Lilies from Japan, Acacias from New Holland, Heaths from the Cape of Good Hope, Palms from Northern Africa, Rhododendrons and Azaleas from the New World (America), and Roses from the far-famed gardens of Damascus.

A magnificent sight is this congress of plants in the winter months, and a pleasant promenade during inclement weather; but enter one of these glass houses in

summer, and you then find them oppressive, and the effects of the temperature anything but bracing and healthful. Moreover, after we have taken a view of the gardens that frequently are attached to such residences, and after being dazzled with the survey of the brilliant hues of the flower parterre, instinctively look out for a cool and refreshing contrast. Where shall we

find one? Perhaps there may be a walk and seats beneath the shade of the Elms and Limes; or, perhaps, there is a summer-house and grotto on the margin of some artificial or natural lake, with the Water Lily and the swan upon its surface; then may be felt the secret conviction, "This is the place for me."

Having taken this retrospect of that which has been or is, let us take a prospective view of that which might be (in fact is already in a few places), of a house where those who delight to see the graceful, the verdant, and the varied forms of Nature.

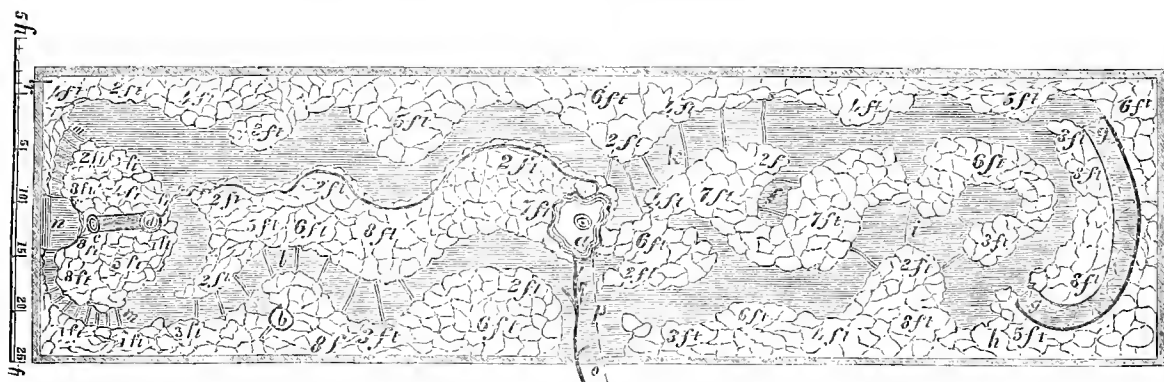
The house that we intend to describe affording this gratification is of the following dimensions:—Length, 100 feet; breadth, 25 feet; and estimated cost, £250. It may be constructed as follows:—First dig out for footings of walls until a solid foundation is reached; and should any difficulty be found in obtaining a solid bottom, throw in concrete composed of one-eighth slaked lime, three-eighths good sharp sand, and one-half coarse gravel or broken stone rubbish.

Build the walls of good-faced bricks, a brick and a half thick,

or of stone, whichever can be obtained the cheapest. Six feet above the ground level lay a layer of flagstones 8 inches wider than the thickness of the walls. The above said flagstones to be 3 inches thick, to face even with the exterior, but to project 8 inches into the interior of the house at both ends and both sides (the door excepted), on which two hot-water pipes—*i.e.*, a flow and return, are to be fixed hereafter. Build another foot more wall upon the flagstones, which raises the walls to rather more than 7 feet, the height desired.

The ground plan given is merely to point out to those who have not seen anything of the kind, or have not the eye to draw from certain given details any correct idea of the effect intended to be produced by the carrying out of the description.

It is presumed that the site for the house is situated so as to be low enough for the water that supplies the fountain, &c., to be conveyed in iron pipes without having to make a reservoir especially for the purpose. The reservoir should not be less than 10 feet above the ground-level of the house. The details of the plan are as follows:—



- a Fountain (*i.e.* jet quarter inch diameter, or less, according to the supply of water).
- b Well of water—that is, fed by filtration from the top of same.
- c Waterfall, height of the same about 6 feet, one-inch-bore supply-pipe, or less.
- d Cistern that receives the water from the waterfall c.
- e Open drain formed of stones, with the joints cemented 1 foot wide (stone ridge coping stones are, with the joints cemented, capital materials for the purpose).
- f Cave, with stone seat.
- g Subterraneous passage.
- h Dropping well.
- i Walk, sunk here about 2 feet below its ordinary level, not making any steps, but allowing the flagstones to slope irregularly.

- k Ditto to about 3 feet.
- l Ditto to about 4 feet.
- m Steps leading to n, where there may be placed a rustic iron chair. The most attractive view of the house when completed will be from this point.
- n Place for seat and platform from which to view the house.
- o Doorway 5 feet wide.
- p Drain that conveys the waste water.
- q Water-pipe that supplies the a b c h.
- r Point of entrance of the hot-water pipe.

The figures 1, 2, 3, &c., show the height of the rockwork in feet where the figure is fixed, that height being reckoned from the path, whether the same be level or sunk.

We will now proceed with the construction of the rockwork. The material throughout should consist of massive fragments of freestone rock that have been exposed to the weather for a considerable length of time, and, if possible, out of a wood, or where the sun's rays have been but faint. We prefer such from experience, of which we have had a little. Old, shaded stones are frequently covered with mosses when they are brought from the woods, &c., and on some that we got about a year ago out of the woods in this locality, are thousands of seedling Ferns, of no less than eight species, besides thirty species of Moss and Lichens galore, that impart an appearance of age to some rockwork here, which stones from the rock could not have had for some years.

We deprecate wood (tree stumps, &c.), for rockwork under glass, although some people say they are first-rate materials for the purpose, but we have not found them to be such. They may be very well where a collection of fungi is desired, or to suit the fancy of those who like to do a thing one day and to alter it the next. Wood rots, and the stones that are above or on it fall, and the work has to be done over again at a time when the plants are about their best. Moreover, the plants do not thrive on them as they will do without them, which no doubt is owing to the venomous threads of the various fungi that harbour there, destroying their roots—the very mouth and existence of all plants, terrestrial or epiphytes.

Commence the formation of the rock at the ends, so that it will be completed at the door. About two hundred tons of rock will be required. They can be brought on carts or waggons to the door, thence on a small truck to the place required, and finally placed in position by the aid of a three-legs and blocks.

The stones should be laid firm, by no means otherwise. Back stones are a good material for that purpose; soil lowers too much unless rammed down, which it should not. The soil used under the stones should be of a porous nature. Fix every stone firm, and lay them so as to leave some good-sized openings for soil (some large and some small), and fix the water-pipes as the work proceeds, laying them in such a position as to be examined in case of an accident, and so go on until the whole of the rockwork is completed.

The flagstones should be laid so soon as the rock is completed, and the waterworks should be tried to see that they work satisfactorily. The flagstones should be undressed, and if one side be rougher and uglier than the other we would lay that side uppermost. We would fix the heating apparatus next. A boiler would be wanted, a twenty-four-inch wrought iron Monro's cannon boiler will shoot out ample boiling water into the 500 feet of four-inch pipe we would attach to it. This done, we certainly would try it to see that it worked well, of which we have no doubt. The roof should now be put on. The rafters should be 15 feet long, 7 inches by 3 inches in thickness (that is one sort), but we would have another 15 feet long, 4 inches by 2½ inches. Both these should be ploughed three quarters of an inch deep by half an inch wide for the glass to rest on, on one of the narrow surfaces, which side, of course, would be placed upwards. The ridge-tree should be 8 inches by 2½ inches, and should be grooved its entire length for the glass to fit into, for we would use no cappings. The wall-plates 12 inches by 2½ inches in thickness; and we would have a groove in these on the under side, half an inch from the outside edge, to prevent from following the wood the water from the roof that should

fall into the spouts: if not grooved, the water follows the wall-plates and runs down the walls. The wall-plates should project exteriorly $1\frac{1}{2}$ inch. The south end should be sashed for glass, the other end should be walled up of brick or stone. At both ends let there be a ventilator 4 feet by 3 feet fixed as near the top as possible, one of glass, the other of wood, and have them to work on a swivel.

There should be double the quantity of rafters of the smaller size to what there is of the other or larger kind. All the wood to be sound, well-seasoned red deal, dressed, and have a neat moulding on the under side of the rafters and ridge-tree. All the timber employed should have two good coats of lead paint before fixing. Thus done, commence fixing the roof. Fix a seven-inch rafter first, then two four-inch rafters, then a seven, and so on to the other end, placing them 18 inches asunder, jointing them at top, and letting them into the wall-plates at bottom to the depth of half an inch. At top they should enter the ridge-tree not less than three quarters of an inch. Lay all the joints in white lead paint and fasten them well, using screws for that purpose. Four cross-tie beams of inch-wrought iron will be required to prevent the roof (wall plates) from jutting out at the foot, each 25 feet long, four screw holes at each end, let them into the wall plates and screw them fast, one at each end, the other about 33 feet apart. The rafters should also have half-inch iron rods from large rafter to ditto, with a screw-hole opposite the centre of each small rafter. Fix these half way up the rafters and screw them fast, that will keep the several rafters in their proper line, a point of some consequence to the glazier. Glaze throughout with Hartley's one-eighth-of-an-inch rough plate glass, the squares 1 foot 6 inches wide by 2 feet long, nailing them in with inch copper nails, and putting the laps, which need not be more than a quarter of an inch. Give two coats of white lead paint inside and outside, and then a coat of varnish. Our architect work is now at an end, and we are right glad, for we do not feel altogether at home. Perhaps we shall be there presently.

Soil wherein Ferns are to be grown should be of a porous nature, and that is not liable to become adhesive by frequent and copious supplies of water. One-half turfy peat such as Orchid growers use, and that which is a light colour, with pieces of decayed moss, and rather sandy, is the best; one-fourth turfy loam, and that which is called yellow or hazel loam is to be preferred; one-eighth pieces of greetstone broken to about the size of a Walnut; one-eighth silver sand; incorporate the above well together, chopping the peat with the spade, but do not pass any of the compost through a riddle. In the above compost they thrive amazingly. They are not benefited by the application of manure, or manure water of any description; and to some species it is so detrimental as to cause death. This applies chiefly to the lesser and fine-rooted kinds. The compost should be worked into the hollows and crevices of the rockwork with a pointed piece of wood or some such like implement. Plants of the small-growing sorts should be planted where the soil is shallow, and the openings between the stones the least. Those that have creeping stems, such as *Davallias*, &c., may be planted where their roots will have the chance of creeping on an overhanging rock: in such a position they are beautiful in the extreme. But as we shall give a list of such kinds as are suited for a greenhouse temperature hereafter, in order to save space we will not deal with that subject at present, except that some Ferns look considerably more to advantage when viewed in certain positions than when they are planted indiscriminately. If the plants have been grown in pots, which they generally are, they may be planted at any season of the year; if not, they should not be disturbed when growing, but rather wait until they are at rest (not growing). March and April are the best months, but we have planted them at all times of the year without any failures of any consequence. The roof must be shaded. Tiffany (Shaw's) No. 3 is what most people use, and it answers the purpose admirably. It should be sewed together and nailed on with small tacks (nails) driven through a piece of leather or list about the size of a shilling. It should remain on permanently, and will last three years.

WATERING.—Some people imagine that Ferns are aquatic; at all events, they get generally too much of that they are fond of—viz., a moist atmosphere, sufficient water at the root as to prevent the fronds from flagging, and, when growing, an abundance of it—that is, when they are in want of water, give them a good drink, and not deal out to them half-allowances. Cold, dry currents of air are to be avoided, for it dries them up like cut grass under a July's sun. At all times the stones (rock) should be kept moist;

and during the hotter summer months a light sprinkling overhead from the syringe every day at even is very beneficial.

TEMPERATURE, &c.—Although we have a heating apparatus it should not be used for any other purpose than that of keeping the temperature from falling below 35° , and to expel damp during the dark, foggy days of November, December, &c. In such weather both ventilators should be opened (unless the fog be intense they must then be closed), and a gentle circulation of air caused by the heat from hot-water pipes. A piece of woollen netting fastened over the opening of each ventilator, so fine as to prevent any great movement of the fronds by the ingress of cold or dry air, and yet wide enough (mashes), to admit air to pass freely is essential if not indispensable. The ventilators can be taken out and replaced only during dense fogs, or when the temperature exteriorly is 32° . In summer one might imagine ourselves in a fair way of being roasted, in a large house having only two openings to let out heat, and these not large in proportion—it is a dream only. We have a shaded roof and a moist atmosphere, two admirable cooling agencies; with them the interior will never be more than 5° above the external air, and on very hot days when the temperature outside ranges from 80° to 90° , inside it will rarely attain 75° , and rare intend 80° ; nevertheless, the plants thrive so well as to astonish their brethren that man pampers in a pot or pots, and makes them compass two or three years' growth in a single season by the application of heat at a very, very wrong time, and at too high a point on the scale of degrees.

INSECTS.—The green fly (aphis), is easily killed by tobacco smoke, but care should be taken not to use very strong tobacco paper, or it may injure the young growths; rather smoke on two successive evenings slightly than risk the plants by an overdose. Thrips, to destroy it, well sponge the infested fronds, and if very much infested entirely remove the fronds and fumigate frequently but cautiously with tobacco until one insect cannot be found. Brown scale is, perhaps, the most troublesome of all insects in a collection of Ferns; remove it by hand while it is young and light coloured. It should not be permitted to become brown and hard, for it is then only a cover for thousands of microscopic young ones. If burst in that state they fall on plants near them, and the would-be-destruction is a direct augmentation. Should any plant be hopelessly infested with it, remove all the worst parts, and if the case be desperate remove them all, examining the crown or crowns where they have an abundance of harbour among the scales, remove them by hand, and always have an eye to them. Mealy bug is occasionally found, remove them in a similar way. Woodlice, a few toads kept in the house will soon set them to rest. Snails and slugs, catch them at night by the aid of a lantern. The plants should be clean when planted. If, however, we found any insects of any kind, we would not admit them into a collection of clean plants until they were thoroughly cleaned and perfectly free of all disease. We know a fernery that was formerly kept at stove temperature, but there were only six stove Ferns in the lot of 600 plants; at that time were thrips, mealy bug, aphis, and red spider by the ten thousand. Gishurst compound was used (rather tried), on six plants, the plants were dipped in a solution 8 ozs. to the gallon, overhead for three minutes, in six hours the fronds were black, and, but to cut the thing short, they were killed. The temperature was lowered from 85° by day to 45° in the course of a fortnight—not all at once, but by a few degrees each day; the house was kept moist (almost to saturation), smoked with tobacco paper every other night for three weeks, and the hand was used to the scale and bug. At the end of a month the plants were clean: they, however, were carefully watched for the reappearance of the scale and bug, and were found destroyed. There has not been any of these insects in the house since, two years ago, except the green fly, and that has required a dose of tobacco only twice. Soft soap should be used but little and with caution, and we have not found any composition that does not injure the fronds, no matter how weak the solution.—**GEORGE ABBEY, Gardener to E. Hailstone, Esq., Horton Hall, Bradford.**
(To be continued.)

WORK FOR THE WEEK.

KITCHEN GARDEN.

The frequent showers that we have had of late have been very favourable for garden operations. Every yard of ground that can be spared to be prepared and planted with winter vegetables.

Immediately a crop is done with either remove it or dig it in. Sprinkle the ground with quicklime to destroy slugs, but more abundantly when the refuse of the crop is dug in. Before earthing up crops in dry weather give them a good soaking with water. *Beans*, a few *Mazagans* may yet be put in, which will produce late in the season if the weather prove favourable. *Broccoli*, *Cape* and *Grange's Cauliflower* may now be planted where the early *Peas* were growing and have been removed. The main crops of the other sorts to be planted out as early as possible. If the weather is dry they will require an abundant supply of water. *Cabbage*, sow a little more seed immediately, if the sowing recommended last month has failed. *Chervil*, make another sowing for a succession. *Cucumbers*, put in a few cuttings or sow a little seed to have a few plants to plant out for a succession till Christmas. Pay every attention to those in frames, they require a liberal supply of water twice a-week, and to be sprinkled overhead every afternoon. *Endive*, continue to plant out a few at a time to keep up a succession. Another sowing to be made. *Dwarf Kidney Beans*, the last principal sowing to be made; earth up the advancing crops; those swelling their pods will be greatly benefited by a good watering. *Parsley*, make a sowing to get strong plants before winter. *Peas*, a few more may be sown which will come into bearing if the autumn is favourable; earth up and stick the advancing crops, and water those that are in bearing if the weather is very dry. *Vegetable Marrows*, these will require a very liberal supply of water during the continuance of dry weather; stop the main shoots to produce laterals.

FLOWER GARDEN.

Plants growing in baskets and vases to have a stirring on the surface before it is entirely covered with foliage, likewise a layer of moss to be put on to save watering, by checking excessive evaporation. Flower-beds to be carefully looked over, the ground loosened, weeds removed, and the various plants carefully pegged down or tied up. Bulbs to be taken up and stored away until the autumn, and their places to be occupied with plants from the reserve stock. Russian Violets may be separated and fresh plantations made. Attend to the Dahlias, watering them with weak liquid manure, and insert stakes to which the laterals can be tied when sufficiently long. When the grass of the Ranunculuses turns yellow take up the roots, do not wait till the whole collection is ready or else those which have arrived at maturity will again have begun to grow, which will most likely cause their destruction. Portugal Laurels, Cyresses, Arbor Vitæ, Bays, Yews, and tree Box, are in some places used to embellish Italian and geometric flower gardens, and terraces, and when cut into architectural figures are fine accompaniments of the above style of gardening. To cut them into the figures they are to assume, in many cases wires will be necessary to keep the branches in their proper place at first, when afterwards the knife and shears will suffice to keep them in proper forms. They should, however, be clipped in two or three times during the season to attain correctly the required outline. Very interesting examples are to be seen under the manipulation of Mr. Tombs, gardener to Major-General Fox, Kensington. Give plants infested with the green fly a liberal washing with the engine or syringe them with tobacco water. Mildew sometimes becomes troublesome after this season. It may, however, be kept in check by applying sulphur to the parts affected the moment it makes its appearance, first watering them that the sulphur should stick. Continue to propagate Pinks, Piecostes, and Pansies. Clip Box edging in cloudy weather. Roll and mow lawns, and follow up assiduously the extirpation of weeds.

FRUIT GARDEN.

Look over espalier Apple, Pear, and Cherry trees frequently, and continue the system of shortening and stopping the shoots, and the removal of superfluous wood. Let the shoots of Peaches, Apricots, Plums, and Pears be laid in at once to the walls. Proceed with the layering of Strawberries for forcing, and let them be kept watered. Fruit trees in general may now be budded.

STOVE.

Give abundance of air and use every endeavour to keep the house saturated with moisture. Look well to the plants which are growing for winter blooming, and also to Achimenes, Gloxinias, Gesneras, &c., a good stock of which will be found useful in the autumn. A slight shade will be necessary for tender plants in active growth for a few hours during bright sunshine, but it should be used as sparingly as is consistent with

the perfect safety of the foliage. If previous directions have been attended to there will be but little to do to the Orchids here besides attending to the ordinary routine of affording them a thoroughly moist atmosphere, repotting any specimen that may require it, and sponging the foliage, as may be necessary, to keep it perfectly clean.

GREENHOUSE AND CONSERVATORY.

The border in the conservatory to be examined, and if necessary give it a thorough soaking of weak liquid manure. Give a liberal supply of air at this season, both night and day, and keep the house as neat and clean as possible. Chrysanthemums to be duly potted and attended to, to be supplied liberally with manure water, and to be sprinkled overhead every evening. See that Azaleas are clear of thrips. Forward Chinese Primroses for winter blooming. See that the Lilacs, Deutzias, and Roses forced the preceding season are plunged and top dressed. A few pots of Mignonette sown now and kept under a north wall will be found useful in the autumn. W. KEANE.

DOINGS OF THE LAST WEEK.

THE fine genial rains have come at last, worth more than a hundred artificial waterings, and oh! everything has grown as a consequence of the rains falling so gently, and yet somewhat heavily, on ground previously so well heated. Were we sure of such warm weather as we lately had returning, and continuing, we might try many tropical plants out of doors, both fruit and flowers, with good hopes of success, though, in such a season as the last, they would but pine and die.

Turned out as many succession Cauliflowers, Colewort Cabbages, Brussels Sprouts, Scotch Cabbaging-kale, Asparagus-kale, Variegated-kale, Cottager's-kale, and Melville's Garnishing-kale, for the first time, and, as yet, see no difference between it and Cottager's-kale, and, much as the latter is praised, consider it far behind the Scotch Dwarf Cabbaging-kale for general purposes; the latter permitting of as early and regular cutting, and remaining close and compact in its heads or sprouts after the others were a mass of flower. Have frequently had this Scotch-kale good up to the end of June; no small matter if Cabbages happen to be late. Some of these we planted between the rows of Potatoes after earthing the Potatoes up; but others, and most of the Broccoli, have been planted out some 4 inches apart in a bed which we use for bedding flower plants, there to stand until early Potatoes and early Peas are removed. Early Cauliflowers in beds under hand-glasses were earthed-up by digging a trench between the beds 15 inches wide, and 18 inches deep, and rotten dung being placed in the bottom and forked over. Strong plants of Celery were put there a foot apart, and what is still left of the Cauliflower leaves just throws a flickering shade over the Celery, which it is very partial to until growing freely. These few rows between the Cauliflower are generally all we grow in rows. The bulk of the plants are put into beds 4 feet wide, and 4 feet between, dug out about 9 inches, and Peas, &c., sown on the top of the ridges, so that they shall be gathered and gone before the Celery needs earthing-up, about which we are never in a hurry. These beds when supplied with manure are but little beneath the general level before the ridges were thrown up. If these ridges run north and south—in fact, in any other direction but east and west, the shade will be of advantage to the Celery, and save some waterings which otherwise they would require. Of course a little care must be taken in gathering the Peas that the Celery is not injured or trampled on, but that must not be grudged where ground must be made the most of. The Peas being sown in January or February, the beds are used for early Potatoes with protection, or early Lettuce, and mostly for bedding flower plants to be hardened off under protection at night, and, as these are got rid of, three rows of Celery are transferred to each bed. If the beds were sunk deeper than stated, there would be danger of the plants rotting in the winter and spring.

Sowed a few Eclipse, Knight's Dwarf Marrow Pea, and a few Bishop's Dwarf Pea. Will sow the last of the latter in a fortnight, just in chance for getting a few late ones if the end of October should be fine. Gathered Veitch's Perfection last year until the day before the severe frost in November. Thinned Turnips, Radishes, sowed more, and also succession of Lettuces, Endive, Onions, &c., for salads, and a bed of Chicory for winter and spring use. On this, the 26th, there are signs of the rain clearing off; and will run the hoe through all growing crops as soon as the ground is hard enough to prevent patching with the

feet, as it is amazing how a week of dripping weather has brought to light weeds unseen before.

Continued looking after the fruit trees much the same as last week. Nailed the points of Cherries, and netted them to keep the birds from eating the crop. Thinned out the shoots of Currant bushes, as we needed them for hair-pin-like pegs for the flower garden. Fastened those and Gooseberries that the wind was swaying, owing to the too-heavy crops. Pulled all the weeds visible in Strawberry quarters preparatory to netting them, as few things look more slovenly than seeing some big weed growing through the meshes of the net, as if you had placed the net as a training-frame for it to luxuriate on. Turned out, as time could be got and ground be at liberty, the Strawberries forced in pots, giving them 2 feet one way, and 15 inches or 18 inches the other. The first turned out are now beginning to show flower, which will come in after such late kinds as Elton and Eleanor, and be succeeded by later plantings. Independently of thus gaining a second crop from the earliest planted in autumn, there is no means I have tried for getting such a heavy crop the following season. The produce is immense, but the first season after planting gives you the cream. Such plants should not stand above two years. We generally turn the plant out of the pot, and plant it crooks and all, merely running our fingers over and in the sides of the ball to give free egress to the roots, and packing the soil firmly against it and watering well. The sooner these plants are turned out the better they will yield the following year; if they stand long, kicking about either in their pots or out of them before being planted, they will not greatly exceed those young plants turned out in autumn in the usual way.

As winds have come with the rains, not only Cucumbers, as alluded to last week, but Dahlias, Sunflowers, Hollyhocks, and almost everything in exposed places wanted looking to. Early Tulips and Ranunculuses also needed raising and drying gradually in a shady place. Staking and pegging have been partly interrupted, not merely because the rains were too heavy for the men, but in all cases where the feet were required to go on the bed, the tramping would do more harm on the wet soil than the tying would do good. This did not apply in cases where the operator could reach the centre of the bed without putting a foot on it, or only one foot supported on a piece of wood 6 inches wide and 15 inches or 18 inches long; hence the importance of beds not more than 4 feet or 5 feet wide, so far as being easily managed in all weathers, and without foot trampling. Beds that cannot be so reached, and constitute prominent features, we never allow to be trampled on, even in dry weather, but insist on the use of these little boards, so that the soil shall be uniform in porosity. In large beds where coarse things are grown a dry day is chosen, and the boards dispensed with. Besides this tying the fork and the hoe are the only implements used, with a broom to switch the sides when done. We hate the sight of a rake in all such cases, and gave sad umbrage to some of the neat-keeping, nicely-dressed-bed people who rake and rake at their beds to make them look neat, instead of using means to conceal the earth quickly with leaves and flowers. We have seen such scratched and continuously-raked beds as hard as a stone nearly, and yet people wondered the plants got less instead of larger. For the mass of flower-beds we use twigs of spruce or larch, or what we can get for support. They do not look extra beautiful at first, but the growing plant conceals them ere long, and yet the twigs prevent it being moved or broken by the winds. Our pegs for Verbenas, Petunias, &c., especially the outsides of them, are made chiefly of young shoots of currants, or any other tree that can be got; a bundle being held in the hand and the leaves stripped off—young Laurel shoots taken off in winter and laid in a heap, are capital for the purpose, as all the leaves will drop as soon as touched. Whatever the material, the man holds a small bundle of such shoots in his left hand, and with the knife in his right hand, and singling out a shoot he breaks it over the knife in lengths to suit his purpose—6 inches for small things and 8 inches or 12 inches for stronger things. Then suppose you take one of these little sticks, say 6 inches in length, bring the two ends together, so as to crack it in the middle, leaving the bark and a little of the wood on the lower side, and you have a wooden hair-pin. Place the two ends in the ground, over the shoot, and the peg is put to its use; all these operations go on at once. The lad breaks the shoot over the knife, cracks it in the middle, and gets the ends in the ground, and another and another follow, getting in his dozen almost as soon as some people could sing out Jack Robinson.—R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the department writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

LAWSON'S METEOROLOGICAL THERMOMETER STAND.—We shall be obliged by being informed where this can be obtained, and what would be the expense, including thermometers and rain-gauge. This information is required by several correspondents in consequence of our notice and drawing of it at p. 220.

VARIEGATED PANSY (*F. M. E.*).—Received with many thanks.

ALTERING A GREENHOUSE FURNACE TO THE KIDDEAN SYSTEM (*B. W.*).—There is no objection to the proposal of a chamber except the additional expense. With a quick, good drawing-flue, however, you will be disappointed if you expect great heat in your chamber. It is quite possible to ride any idea until it expires, and those who have already flues or hot water doing well, but must try every new or merely old but resuscitated idea, will often find that they spend their money for less than an idea. However, your chamber will at least be a harmless affair, but the heat obtained from it, in extent, will be in proportion to the bed draught of the flue, or the care taken to prevent the combustion by a general use of the damper. Where economy of fuel is the first consideration, we would have a flue, long or short, from the furnace, to absorb much of the heat that now goes up the chimney. This is one reason why when there is no such flue, heating various houses from one boiler, is cheaper than heating each house with a separate boiler, just because the heat escaping from one chimney is less than that escaping from half a dozen. We have, however, several times followed your proposed plan with boilers, by placing a chamber over and round them, especially over them. Before we did so, we often found that the shed in which the fire place and boiler were placed, were much warmer than the house heated by the pipes from the boiler. The chamber intercepted this heat, and with two openings in it, the one near the bottom for cold air, and the other near the top for hot air, we obtained a stream of hot air pouring into the house in proportion to the strength of the fire used, and the care with which the damper was applied. If 20 feet or 30 feet of a flue had run from the furnace before getting to the chimney, we would not have expected so much from heat from the chamber. I once outwitted myself with a small house about your size heated with a small flue below the ground. To save all the heat, as I supposed, in making the stove-hole outside the wall, I so contrived to have the furnace door considerably inside the wall—say a foot; the bars, &c., therefore, were inside, below the floor of the house, but 3 feet, or so above the furnace the floor never gets warm, so that what I expected would be the hottest is in reality the coldest part. This would not have signified if the flue had not been a short one, as the heat was carried along; but from that very fact I lose 3 feet or 4 feet of heat-radiating space, which I could have had by having the furnace-bars closer to the outside, instead of inside the house. This simple circumstance will show our correspondent that few economical plans will combine every advantage. We suspect the furnace is too low, but we can hardly judge, as you do not tell us how high your flue is above the floor in the greenhouse. To draw well, the furnace-bars of your flue should be from 15 inches to 24 inches below the bottom of the flue, and if the corners of the flue are rounded instead of rectangular, the draught will be all the better. We consider the ventilation is sufficient if the door stands open in summer. If not, you should have two openings in front for air, or even three, which, if smaller, will be better than one sash in the middle.—F.

CAMELLIA LEAVES DECAYED (*A Subscriber*).—The brown spots and edges of the leaves are caused by the defective action of the roots. Probably they have been sometimes too wet and too cold, and at other times too dry.

STRAWBERRIES (*E.*).—Elton Pines averaging 1 oz. in weight are very fine; but this season of heat and showers has produced everywhere and of every variety, a finer and more abundant crop than has occurred for some years. Seed from your Elton Pines will not, for certain, produce finer varieties than more moderately-sized berries. Would not our "Fruit Manual for the Many" suit you?

AQUILEGIA CARYOPHYLLOIDES SEED (*D. Laurie*).—It seems from your statement that the seed was defective. Yet the seedsmen may not have been to blame—they are dependant on the seed growers; and even these may not be in fault, for last year was one of the worst ever known for seed-ripening. Mr. Rawson is a private gentleman, and we have no authority to give his address. Jurinea is a Composite plant, and so is that of which you enclose a leaf and immature head; but from such specimens we cannot undertake to say it is a Jurinea. "The Wild Flowers of Great Britain" will be completed in about sixty Numbers.

CUCUMBERS SHEDDING THEIR FRUIT (—).—Examine the earth; if wet stir up and refrain watering for a time. If dry below give a good watering, and keep the Vines thin. Wash the wood of the frame with flowers of sulphur and lime. These may be effectual, but, if prudent, you will prepare another bed, and use light, fresh, well-aerated soil. We have had the same evil ourselves and could not cure it, though we kept it in bounds. It is one of those diseases which, when it comes, nonplusses the best doctors, until soil, &c., is all fresh. Sourness in the soil we consider the predisposing cause. You might have your Heliotrope with Ageratum, but we can say little, as we know nothing of the colour of your Petunias or Verbenas. A variegated Geranium-bed might look well. Very likely Love-lies-bleeding, or Chrysanthemum tricolor, or Viscaria oculata, or Coreopsis tinctoria, or Drummondii, would do; but we cannot say what would suit you in the circumstances.

GREEN GAGE SUCKERS (*A Subscriber*).—Bare the stem of the tree carefully, and cut off these suckers either with a sharp knife, or a sharp mallet and chisel, and daub over the parts cut with white lead.

CONSERVATORY ROOFED WITH HARTLEY'S PATENT GLASS (*A Subscriber*).—Do not put up any blinds or shades until you find that they are necessary. If the light and heat require moderating at all, which depends much upon your aspect and situation, we would much prefer the painting the inside of the glass with strongly-sized water, in which a little whiting was mixed, and a little stone blue added, just to give the mixture a slight azure tone.

PEACH TREES TOO LUXURIANT (X. M. G.).—We do not quite understand your case. We presume you meant to say this summer instead of last. We presume that your wood was imperfectly ripened last autumn, and that and the frost together, either at the top or the roots, or both combined, injured the fruit-buds. That might be done and the wood-buds break with great luxuriance, and then the vigour would be increased from there being no fruit to moderate its strength. In thinning, the weaker and middle-sized shoots should have been retained, and the other strong ones taken away or shortened. In shortening a strong shoot early, three, four, or five, nice sizeable shoots could be obtained from it, according as there is room. These middle-sized shoots, hardly ever thicker than a quill when strongest, are easiest to harden and ripen. If such thinning does not check luxuriance sufficiently, you ought to examine the roots, and either shorten or raise them in August; doing so just so much as to check growth, but not to make the shoots flag much. This will enable the sun to have more power on them. You may pot all the *Ipomoeas* named, in light sandy loam and leaf mould, and keep close in a cold pit by the middle of July. They will do admirably in the conservatory.

TREATMENT OF VINE LATERALS (T. K. L.).—If the fruit is swelling kindly thin the laterals, but do not remove them all, unless the main foliage is extra large. When the fruit is ripe and almost finished colouring, you may remove the most of them to give more light to the house, to enable the air to circulate more freely round the bunches, and to concentrate the powers of the plant more in ripening the wood. The reason for removing gradually has often been given of late. If removed all at once you would check growth, and the fruit would not swell so well. If your plant of *Kennedya* is very luxuriant, prune it pretty well back and thin out shoots. If not so, prune but little, provided there is room for the shoots left to have plenty of sun and air. If pruned, you must keep the plant close for a time to expedite growth, and then, by exposure to sun and air, you must ripen that young wood before autumn. If less pruning is necessary, care in ripening the wood will be required.

CULTIVATING TRITOMA UVARIA GRANDIFLORA (Eliza).—The best way to raise *Tritoma uvaria* is from strong side-suckers from the old plant in the spring. The next best way is to get it from seeds sown at the beginning of March, in a warm, not a hot, bed, and to plant out the seedlings in the same ball by the end of June for that summer only; then in the autumn to take up ball, roots, and all, and keep them half dry all winter safe from frost; then to divide them out next spring and plant them out separate, and, after that, leave them out in winter with some mulching over them that will save them from frost. That is just how our seedlings and dividings have been done, and our stock altogether looks extremely well.

PLANTS FOR AN UNDERGROUND ARCHWAY (A Subscriber).—That rock-arch was not made to have proper climbers run over it. At the back of the foundation of a rockery or rock-arch, there ought to have been a mound of earth, and, as the "dry" stones were being laid, proper soil joining to that mound should have been filled in just as mortar is in buildings all the way to the top of the arch; the mound, also, should have been also as high as possible; then, by planting any little climber in the joints between the stones in any part of the arch, the roots would soon reach to the mound and take hold of it. As it is, *Ivy* is the only plant except climbing *Roses*, or both together, are the only things to which you can trust, but there must be earth to plant them in as near the arch as possible, and then train all over it as the plants grow.

NAMES OF ACHIMENES (J. Hols.)—It is impossible to name varieties of florists' flowers from a small cut specimen. The only course is to compare it with growing-plants in some neighbouring nursery. There are many purple-flowered sorts having a close general resemblance to yours.

FRONT WINDOWS OF VINEY (X. J. Z.).—So far as we can make out we would have the front 6 feet or 6½ feet in height; the half of that, or as much more as you like, should be glass. Every other sash should be made to open, or every one would be better. If all are fixed, ventilators should be placed in the wall, and if the heating-apparatus was 'proptic' these ventilators it would be better still. The back of such a house should be from 11 feet to 13 feet or more. The pit inside then may be 2 feet 9 inches or 3 feet deep.

FLOWER SHOWS FOR 1861.

- JULY 3rd. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.
 JULY 6th. CRYSTAL PALACE. (Rose Show.) Sec., W. Houghton.
 JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) Garden Superintendent, G. Eyles.
 JULY 15th. TOWCESTER FLORAL AND HORTICULTURAL SOCIETY. Sec., T. B. Rodhouse, Towcester.
 JULY 18th. PRESCOT. Sec., J. Beesley.
 AUGUST 9th. BELFAST ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Carruthers.
 AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.
 SEPTEMBER 2nd. HECKMONDWIKE. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmondwike.
 SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.
 SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) Garden Superintendent, G. Eyles.
 SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.
 NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) Garden Superintendent, G. Eyles.
 NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.
 NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY SHOWS.

- JULY 3rd, 4th, and 5th. BLACKPOOL AND WEST LANCASHIRE. Sec., Mr. E. Fowler, jun., Market Street, Blackpool. Entries close June 30th.
 JULY 18th. PRESCOT. Sec., Mr. J. Beesley.
 AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. Sec., Mr. W. Houghton.

- SEPTEMBER 3rd. POCKLINGTON (Yorkshire.) Sec., Mr. Thomas Grant. Entries close August 26th.
 SEPTEMBER 11th and 12th. MANCHESTER AND LIVERPOOL. Sec., Mr. T. B. Ryder, 2, Elliott Street, Clayton Square, Liverpool. Hon. Local Sec., Mr. S. H. Hyde.
 SEPTEMBER 24th. BRIDGNORTH. Sec., Mr. R. Taylor, Bridgnorth.
 NOVEMBER 22nd, 28th, and 29th. DARLINGTON. Sec., Mr. J. Hodgson. Entries close November 11th.
 DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.
 DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., Mr. W. Houghton.

N.B.—Secretaries will oblige us by sending early copies of their lists.

PROFITABLE POULTRY KEEPING.—No. 7.

(Continued from page 185.)

FOWLS AND THEIR BREEDS.—(Continued).

In my last were given—1, the speckled Dorking; 2, the white Dorking; 3, the Hamburg (Everlasting Layer).

I now continue the list with

4. *The Game*.—This is a noble breed, and, for flavour of flesh and richness of egg, is worthy to stand at the head of the list. For profit they are scarcely desirable, though the prices obtained both for their eggs and chickens are in advance of every other kind; not to that extent, however, as to compensate for the various drawbacks incident to the breed. In the first place they are pugnacious from the shell, so much so, that you can scarcely reckon to rear one-half the number hatched, putting one side cases of accident and sickness. They require an extensive run; are rather aristocratic in their diet, evincing a decided predilection for dry grain to any other food. A friend of mine has a yard of Game fowl only, and after some twenty years' experience, assures me that he is well content if he has four chickens fully reared from each hatch.

5. *The Cochín*.—This breed will do well on a limited run, and I am disposed to class them as A1 for a winter layer. I found that not only the pure breed, but any which had a strain of the blood, even to the distance of a generation or two, were the best cold-weather layers. The eggs are small, both in comparison with those of other fowls and the size of the bird itself. It is but a myth that they lay daily; though I well remember when the furor for the bird was at its height, the most ridiculous statements were eagerly received, even to the extent of their laying twice daily. It is undeniable that they do lay well, but for the table the breed is not desirable, size alone excepted. The flesh is comparatively inferior, and the colour decidedly bad. Persons keeping fowls in towns, should, nevertheless, prefer the Cochín; and it is an excellent poor man's bird. This breed sits true, and the hens are fair nurses. When feeding and scratching for her young she is apt to be careless, throwing her chickens about more than other fowls generally do.

6. *The Spanish*.—A stately, handsome breed. Shy layers, indifferent sitters, and bad nurses. Eggs large, and rather good flavoured than rich. Troublesome to rear. Flesh inferior to the Game and Dorking. Certainly not a profitable bird.

The above list might be greatly extended; but, inasmuch as the object of these papers has been to endeavour to point out how to keep poultry with profit, I shall confine it to the six breeds named. To those disposed to "try their luck," I should advise a further limitation, and urge them to confine their stock to Nos. 1, 3, and 5. These three will keep their owners well supplied with both eggs and chickens. Should their object be eggs chiefly, the greater proportion of the stock should be No. 3 (Hamburgs); if chickens, then the majority of birds should be No. 1 (Speckled Dorking).

I thus bring to a conclusion my papers, in so far as general management and a description of those fowls best calculated for the breeder and the salesman are concerned. I may possibly find a few more words in elucidation of a few points, which, for convenience, I shall bring into one view.

And now kind reader, farewell. If in these papers on Profitable Poultry Keeping I have been able to impart some little knowledge, or give some little pleasure, I am well content, and shall feel repaid for my labour—assuredly a labour of love—for in all that pertains to a country life, am I an enthusiast. In common with thousands I love the country for its own sake, and its labours for the labours' sake, and its simple pleasures hold far above those of an almost artificial state of existence in crowded cities; and of the many employments which a country life presents, would I specially commend poultry keeping, both for the pleasure it gives and its certain profits.

Let me, however, be clearly understood, that to obtain the latter result in full, the undertaking must be carried on in the country; yet sufficiently near to a large population to insure a ready sale and good prices. To see fowls penned up in a wretched yard (except a garden in a large city), damp, ill-ventilated and dark, and yet expect profit even if liberally fed, is too absurd; and those who try with merely such appliances must expect nothing but disappointment—not that I expect poultry to do on “only grass and air;” yet I shall be near proving that grass and air only, in so far as the owners of hens are concerned, will sometimes do wonders. But I must not anticipate.

I am called upon to vindicate my statements, and this I hope to do in the ensuing Number.—LEIGHTON.

AGE OF CHICKENS FOR EXHIBITING.

In your remarks on last year's Crystal Palace Summer Show, you say some of the chickens were much too young to have any chance of a prize. What do you think the youngest age at which Dorking chickens would stand a fair chance?

Does the light or dark colour, or the regularity of the markings of plumage in Grey Dorking fowls, weigh at all in the opinion of Judges, other things being equal?

Are fowls sent as fat as possible, or do they stand as good a chance taken up from a good run where they are well fed?

I have a valuable Dorking cock with the balls of his feet very much swelled, and one festered from roosting where there is a boarded floor. I have given him better quarters. Can I apply anything to reduce the swelling?

Last year I had a Spanish cock which considerably acted as dry nurse in the case of a brood that was early forsaken by its mother. I have seen him nestle the brood under him exactly as the hen, and not only so, but he continually uttered the bloody cluck or call similar to the hen, but with a masculine hoarseness quite different from the ordinary call of the cock. He regularly took them out to pasture, and, indeed, was more than a mother to them. I shall be glad to hear if any of your correspondents have met with similar cases.—SENEX GALLUS.

[It is difficult to assign any age likely to be successful in competition, or to name that which, of necessity, defers hope till a future time. One fowl, thanks to breed, to care, and to judicious feeding, will be larger at twelve weeks than another at fourteen, and, while there is always a feeling of satisfaction, and very often an award of high commendation, where success is only marred by youth, there is always bitterness and disappointment when it is found that chickens no older than many left at home as having no chance owing to youth have been successful. Much again must depend on seasons and weather. In a favourable season you may expect forward chickens, while, if the weather has been adverse, it is almost certain they will be small and backward. We are, then, in some difficulty how to answer the query of our “SENEX GALLUS,” as to “the youngest age at which we think Dorking chickens would stand a fair chance.” We think it has been a bad season this year, and we therefore advise our readers to feed well, to make the most of the time between this and the show, and to exhibit if they are sixteen, eighteen, or twenty weeks old at the time of showing.

Neither light nor dark colour, nor the regularity of markings, are important points in Dorkings; but, where everything else is equal, then, if in one pen two pullets differed in markings, while in another they were perfect, we imagine that would turn the scale in favour of the latter. Dorkings are not feather fowls, excepting in the Silver Grey classes.

In our opinion, fowls lose chances of success by being very fat, as a poultry show is not a show of fat stock, and, what is required for success is hard condition of plumage and body. This can only be obtained in Dorkings by fowls that are running about, with good food, and plenty of exercise. They will be full of meat and muscle.

The only thing you can do is to poultice the swelled foot of your Dorking cock, and, if necessary, to open it. He must then be kept for some time on soft grass, and the wound must be covered that no dirt get in to it. It is a shame, if it is not wicked, to put fowls on any flooring but earth.

We have no such instance in our experience as that of your Spanish cock acting as dry nurse and mother. In Italy nearly all the chickens are reared by capons. We have seen one in this country maternally attending to a brood, and broken-hearted when they were taken away. The hybrid between the fowl and

common Pheasant shows a sort of difference of sex by size and appearance, although, in fact, it is a disputed point whether any difference exists (we do not believe it does); let that be as it may, the apparent male of this breed is never so happy as when sitting on eggs; we have observed it hundreds of times, and have seen the bird watch the hen off the nest, and settle down on the egg with all the delight in the world. It is a very curious fact, but the destruction of one sex in a bird would seem to confer to a certain extent the propensities of the other. Thus the strange bird killed in coverts, and called a hen-cock Pheasant, is a hen indeed, with a rupture of the ovary which unfits her for laying. If this bird be dissected, the entire inside will be found saturated with yolk of egg, or something exactly resembling it in colour and substance; she then partially takes the plumage of the cock: thus the capon loses the plumage and habits of the cock. The damaged pullet, even in common fowls, takes partially the plumage of the cock, her comb and gills grow, her tail turns over, hackle and saddle appear and lengthen, and she crows.

We have wandered a long way in our gossiping; to conclude, we would add we do not advise you to breed from this chicken-rearing cock.]

THE ESSEX AGRICULTURAL ASSOCIATION'S POULTRY SHOW.

THE meeting of this Society, held on Tuesday last, was, in spite of very bad weather, eminently successful. The department which especially belongs to us had a great advantage over the others, from the fact of its being held under cover of a good marquee. It had also another advantage—that of being under the able direction of Mr. W. A. Warwick, of Colchester, who is an indefatigable steward, and of good experience. Like many other county associations, the Essex is only bound by the limits of its county, and this year it settled at Romford. The spot chosen for the Show was happily selected—it was in the park of Mr. McIntosh, where good solid trees of many years age gave a welcome shelter to man and beast, not from a scorching sun, but from a driving and ceaseless rain.

The first and most important class was that of *Dorkings*. These purely farmer's birds are receiving in Essex the attention they deserve. Fifteen pens, all of which were good. The first prize was taken by Mr. Philip Mason, of Brightlingsea, with a pen of birds that are worthy of larger shows. The second prize fell to the same gentleman, and the third went to Mr. Henry Lingwood, of Needham Market—a name well known to exhibitors of White Dorkings. Nine good birds represented the *Dorking Cocks of Essex*, and here again Mr. Mason was victorious. In the class for White Dorkings Mr. Lingwood took the prize, as did Mr. Craigie for *Spanish*.

The *Game* were great favourites. In the class for *Piles*, the first prize was taken by Mr. Pettitt with an unusually good pen, the second was taken by the same gentleman, and the third went to Worcester to Mr. Corbett. For the *Black and Brown Reds* there was keen competition, and the first prize was taken by Mr. Matthew, of Stowmarket—a name well known as a breeder throughout the eastern counties, the second went to Mr. Pettitt, and the third to Mr. T. Hill, jun. The *Duckwings* are favourites, and were well represented. Mr. Matthew again won first, Mr. Gosling, of Bedford, second, and Sir T. B. Lennard, Bart., took third.

In the *Single Cock* class, the Rev. T. L. Fellowes had a very hard task to beat Mr. Matthew, but the bird of the latter was out of condition.

Mr. Fellowes was also successful in *Golden-pencilled Hamburgs*; Mrs. Pattison, of Maldon, taking second. The same gentleman won for *Silver-pencilled* and *Golden-spangled Hamburgs*. Mr. J. Cook, of Colchester, was successful with *Silver-spangled Hamburgs*; Mrs. Pattison taking second, beating Mr. Fellowes.

In the class for “any other variety,” Mr. Craigie for *Bantams*; Mr. Edwards with *Polands*, and Mr. Postans for *Duckwing Bantams*, carried off the honours.

Miss Julia Milward won the prize for the best pen of *Turkeys*, with three birds that were well worthy of the distinction. Sir T. B. Lennard, Bart., stood first for a very fine cock Turkey of great weight, beating Miss Crawshaw and Mr. Tuck.

Mr. Craigie took the prize for a pen of *Chinese Geese*; and Mrs. Seamons, of Aylesbury, carried off both the prizes for *Ducks*.

In the class for "any other variety" of Ducks, Mr. Saunders Sainsbury stood first with a pen of very good Buenos Ayrean; while for "extra stock," Mr. Boghurst was highly commended for a pair Brent Geese.

The Show, on the whole, was highly successful, and the birds exhibited far above the average.

DORKINGS (Coloured).—First and Second, P. Mason, Brightlingsea Hall, Essex. Third, H. Lingwood, Needham Market, Suffolk. Highly Commended, J. Frost, Parham, Woodbridge, Suffolk; G. Griggs, Romford, Essex. Commended, D. Jackson, Chadwell Place.

DORKING COCK (any colour).—Prize, P. Mason, Brightlingsea Hall, Essex. Highly Commended, H. Lingwood, Needham Market, Suffolk. Commended, P. Mason, Brightlingsea Hall, Essex.

DORKINGS (White).—Prize, H. Lingwood, Needham Market, Suffolk.

SPANISH.—First and Second, J. H. Craigie, Woodlands, Chigwell, Essex.

GAME (White and Piles).—First and Second, E. Pettitt, Chappel, Essex.

GAME (Black-breasted and other Reds).—First, S. Matthew, Stowmarket, Suffolk. Second, E. Pettitt, Chappel. Third, T. Hill, jun., Brentwood, Essex.

GAME (Duckwing).—First, S. Matthew, Stowmarket. Second, H. W. Gostling, jun., Oakley, Bedford. Third, Sir T. Barrett-Lennard, Bart., Belhus.

Highly Commended, P. Mason, Brightlingsea Hall.

GAME COCK (any colour).—Prize, Rev. T. L. Fellowes, Beighton Rectory. Highly Commended, S. Matthew, Stowmarket; Mrs. Pattison, Maldon.

HAMBOURG (Gold-pencilled).—First, Rev. T. L. Fellowes, Beighton Rectory.

Second, Miss M. Reid, Stradbroke, Suffolk. Commended, Mrs. Pattison, Maldon.

HAMBOURG (Silver-pencilled).—First, Rev. T. L. Fellowes, Beighton Rectory.

Second, no award.

HAMBOURG (Golden-spangled).—Prize, Rev. T. L. Fellowes, Beighton Rectory.

HAMBOURG (Silver-spangled).—First, J. Cooke, Maidland Cottage, Colchester. Second, Mrs. Pattison, Maldon. Commended, Rev. T. L. Fellowes.

ANY OTHER BREED.—Prize, T. P. Edwards, Lyndhurst, Hampshire (White-crested Black Poland). Prize, R. B. Postans, Brentwood, Essex (Duckwing Game Bantam). Prize, J. H. Craigie, Woodlands, Chigwell (Brahma Poota).

Highly Commended, Rev. T. L. Fellowes; J. H. Craigie.

TURKEYS (Black).—Prize, Miss J. Milward, Newton St. Loe, Bath, Somerset.

TURKEY COCK (any colour).—Prize, Sir T. Barrett Lennard, Bart., Belhus (Cambridgeshire re).

GESE (Grey).—Prize, J. H. Craigie, Woodlands, Chigwell (Chinese).

DUCKS (Aylesbury).—First and Second, Mrs. M. Seamous, Hattwell, Aylesbury, Bucks. Commended, W. P. Boghurst, Frating Abbey.

DUCKS (any other breed).—Prize, G. S. Sainsbury, Rowde, Devizes, Wilts (East Indian).

EXTRA STOCK.—Commended, W. P. Boghurst, Frating Abbey (Black Goose and Gander).

The Judges were—The Rev. Morton Shaw and Mr. John Bailly.

THORNE POULTRY SHOW.

ON Wednesday, the 19th ult., a grand Cattle, Implement, and Poultry Show, was held at Thorne, which turned out most successfully, the weather being fine, and the number of spectators being upwards of 5000. The poultry is always the most numerous class at this Show, and we this year find that there were more entries than on previous occasions, there being no less than 213, though many failed to send their specimens. The number of empty pens interspersed amongst those that were occupied, in consequence of this, gave to the Show a somewhat meagre appearance, which in reality was far from being the case. Many beautiful birds were exhibited in the various classes, and much admiration was elicited by the clean, bright plumage, which nearly every bird presented. A very chaste and elegant silver cup, by Moss & Myers, of Sheffield, weighing 14½ ozs., and valued at £6 10s., was offered as a special prize in Class 48 for the best pen of Game fowls of any breed, and fell to the lot of Mr. G. Helliwell, of Walkley, near Sheffield, who exhibited some remarkably splendid birds. The cup bore the following inscription:—

THORNE AGRICULTURAL AND POULTRY ASSOCIATION.

SPECIAL PRIZE AWARDED TO

MR. GEO. HELLIWELL, WALKLEY, SHEFFIELD,

FOR THE BEST PEN OF GAME FOWLS.

JUNE 19, 1861.

There were forty-nine entries for Pigeons, and thirteen for Rabbits, both being good classes. The following is the list of awards:—

SPANISH.—First, E. Brown, Sheffield. Second, T. P. Wood, Chesterfield. Highly Commended, W. Dawson, Miffield. Commended, R. Tate, Driffield.

COCHIN-CHINA.—First, W. Dawson, Hopton Miffield. Second, J. Staley, North Cottingham, Newark. Highly Commended, D. Barker, Hall. Commended, T. Sykes, Armin.

DORKINGS.—First, J. Dixon, Bradford. Second, Miss M. A. Sledmore, Epworth.

GAME (White and Piles).—First, H. Adams, Beverley. Second, W. Hopkinson, Workop. Highly Commended, G. Helliwell, Walkley, Sheffield.

GAME (Black-breasted and other Reds).—First, W. Johnson, Workop. Second, H. Adams, Beverley. Highly Commended, H. M. Julian, Beverley; G. Helliwell, Sheffield. Commended, J. Nowbray, Fimbley.

GAME (Duckwings and other Greys and Blues).—First, H. Adams, Beverley,

Second, J. Hepworth, Bearswood Green. Highly Commended, J. Taylor, Osberton.

GAME (any breed).—Silver Cup, G. Helliwell, Walkley, Sheffield. Second, H. Adams, Beverley. Highly Commended, R. Bentley, Hatfield Moors; W. Johnson, Workop; H. M. Julian, Beverley; T. Bottomley, Halifax. Commended, J. Fletcher, Stoneclough, Manchester; H. Adams, Beverley.

POLAND (any variety).—First and Second, J. Dixon, Bradford. Highly Commended, D. Barker, Hull.

HAMBOURG (Silver-spangled).—First, J. Dixon, Bradford. Second, R. Tate, Driffield. Highly Commended, W. Cannon, Bradford.

HAMBOURG (Golden-spangled).—First, W. Cannon, Bradford. Second, J. Dixon, Bradford. Highly Commended, J. Wright, Gole; A. Hudson, Onsecliff, York. Commended, R. Tate, Driffield.

HAMBOURG (Silver-pencilled).—First, W. Wood, Walkley, Sheffield. Second, E. Barrow, North Cave. Highly Commended, J. Dixon, Bradford.

HAMBOURG (Golden-pencilled).—First, E. Brown, Sheffield. Second, J. Dixon, Bradford. Commended, G. Smith, Gole; C. Wiffan, Rawcliffe; S. Smith, Northowram, Halifax.

ANY FARMYARD CROSS.—First, R. Tate, Driffield. Second, F. Marshall, Osberton.

BANTAMS (Gold and Silver-laced).—First, F. Wragg, Sheffield. Second, J. Dixon, Bradford.

BANTAMS (Black, White, and any coloured).—First, J. Dixon, Bradford. Second, R. Tate, Driffield. Highly Commended, J. Gawan, Beverley.

ANY BREED OF CROSS.—First, H. Adams, Beverley. Second, G. Helliwell, Walkley, Sheffield. Highly Commended, W. Johnson, Workop; P. Cranid, e, Crowle; T. Sanderson, Sheffield; W. Wood, Walkley, Sheffield.

ANY BREED OF CROSS.—First, W. B. Key, Epworth. Second, G. Helliwell, Sheffield. Highly Commended, R. Tate, Driffield; H. Adams, Beverley; W. B. Key, Epworth.

GUINEA FOWLS.—First, H. Markin, Driffield. Second, R. Tate, Driffield. Highly Commended, J. Hepworth, Bearswood Green.

EXTRA STOCK.

TURKEYS.—First, J. Dixon, Bradford. Second, R. Tate, Driffield.

GESE.—First, Mrs. Appleby, Thorne. Second, R. Tate, Driffield.

DUCKS.—First, Mrs. Longhorne, Armin. Second, T. Johnson, Hatfield. Highly Commended, T. Johnson.

DUCKS (any breed).—First, R. Tate, Driffield. Second, J. Dixon, Bradford.

DUCKS (Aylesbury).—First, R. Tate, Driffield. Second, —Heaton, Armthorpe.

RABBITS.

BUCK AND DOE.—First, B. Henson, Thorne. Second, —Addy, Epworth.

BUCK.—Prize, O. Moxley, Crowle.

DOE.—First, R. Firth, Thorne. Second, G. Jones, Birmingham. Highly Commended, W. E. Hinchliff, Moorsands.

DOE (for weight).—Prize, G. Jones, Birmingham.

PIGEONS.

CARRIERS.—Prize, H. Yardley, Birmingham.

CROPPERS.—First, E. Brown, Sheffield. Second, Messrs. Sharp & Robson, Brotherton.

TEMPLES.—First, E. Gravel, Thorne. Second, D. Barker, Hull. Highly Commended, J. W. Edge, Birmingham. Commended, R. Gravel, Thorne.

JACOINS.—First, T. Elington, Woodmansey. Second, E. Brown, Sheffield.

NUSS.—First and Second, J. W. Edge, Birmingham.

TRUMPETERS.—First, E. Key, Beverley. Second, J. W. Edge, Birmingham.

TERRITS.—First, F. Key, Beverley. Second, E. Brown, Sheffield.

FANTAILS.—First, T. Elington, Woodmansey. Second, J. W. Edge, Birmingham.

OWLS.—F. Key, Beverley. Second, H. Ravenhill, Doncaster.

EXTRA STOCK—PIGEONS.

OWLS.—Commended, J. W. Edge, Birmingham.

TAUNTON POULTRY EXHIBITION.

JUNE 28TH AND 29TH.

THAT portion of our readers who are poultry fanciers will be glad to find that the annual Exhibitions at Taunton, which have been discontinued since 1855, are at length renewed under the most favourable auspices, the Exhibition just concluded proving itself a most satisfactory one. Under the able guidance of Mr. Charles Ballance, everything connected with the Show itself was carried out most efficiently; and we are equally pleased to record the fact that the weather, although for many days past changeable in the extreme, proved highly favourable to the comfort of visitors during the two days the Show remained open.

The Exhibition was held (by special permission from the Horse Guards) in the Taunton Barrack-yard; very roomy pens being erected expressly for the occasion, so constructed that even had rain unfortunately fallen the poultry could not by any possibility have suffered in any way.

The decorations were well conceived, and profuse. From the entrance-gates of the Barrack-yard to the very admission-door of the Show an avenue of firs, each one from some 15 feet to 20 feet high, sprang up as though by magic in the space of a few hours only, the trees forming the same being cut from a neighbouring plantation; and when the arrangements were completed, appearing to all but practised eyes as though they had attained their present maturity on the very spot they then occupied. Nor was the additional beauty of flowers wanting; many of the bouquets would have justly claimed especial notice even at a meeting exclusively appertaining to floriculture. A very superior drum and fife band, stationed some distance from the poultry, much

enlivened the scene, whilst flags and banners gave their help to the general attractions.

On entering the Show itself, it became at once evident that whilst the external adornment of the Exhibition, as just stated, had been so efficiently carried out, the comfort of the poultry had not been for a moment lost sight of; in fact, the barley, peas, and vetches that were used for feeding were as good as could possibly be procured, and we doubt not that many pens of fowls will actually return to their owners in improved condition to that in which they left them. We make mention of this circumstance, in favourable contrast to the sordid views of some committees we have met with, who seemed to regard the good quality of the corn provided as being but little, if anyway, important. This notion in management, however, is undoubtedly a very mistaken one, as those fowls most highly fed at home, feel still the most severely of any the temporary privations ever consequent on bad provender during a poultry meeting, and we trust that some committees of poultry shows will henceforward adopt the more liberal plan we have just hinted as pursued at Taunton; whilst we feel equally assured that exhibitors generally will indicate their personal approval by their greater increase in the amount of entries.

Another peculiarity of the Taunton arrangements was very satisfactory in reference to the plate prizes, and offers a suggestion to any individuals who conduct such exhibitions. Although the diversity of articles was such as to suit the taste or requirements of almost any of the prizetakers, a profusion of articles—such as flower-vases, salvers, table-forks and spoons, claret-jugs, card-baskets, pianoforte-candlesticks, sugar-basons, cream-jugs, &c., being placed for selection, under glass in the centre of the Show, arrangements had been expressly entered into with the various tradesmen who provided the plate, that any winner should be allowed, if desirable, to select whatever article in their various stocks at home he thought fit of the same value, in lieu of those first proffered. How many, we submit, of our principal "silver cup" winners of the present day would joyfully embrace a like opportunity.

Our remarks from want of space respecting the poultry itself must be few and general. The whole were unusually good, and no doubt the useful varieties mustered the most strongly. It will be seen, too, that ladies took no insignificant portions of the plate prizes. To Mrs. Henry Fookes were allotted the plate for both *Turkeys* and also *Cochins*. To Mrs. Seamons, of Aylesbury, likewise a couple of plate premiums for *Geese* and Aylesbury *Ducks*—for such Ducks by-the-by, as a lady facetiously observed, as might readily be mistaken for *Geese* on ordinary tables. Mr. Rodbard's *Spanish Chickens*, and Lady Julia Cornwallis' *Dorkings* were peculiarly good. The whole of the *Game* classes were excellent, the *Malays* and the *Polands* being unusually so.

It is, indeed, rarely so capital a collection of *Pigeons* is got together; they were one of the most admired features of the Show, and scarcely a prize could be named that was not subjected to very severe competition. In conclusion, we congratulate the promoters on the success of this Meeting, and hope from its now being so ably carried out its permanency is secured.

Mr. Edward Hewitt, of Birmingham, officiated as Judge.

SPANISH (Plate, G. Ray, Minestead, Lyndhurst. Second, W. R. Elliott, Plymouth. Third, A. Heath, Calne, Wilts.

DORKING (Coloured).—Plate, Major W. S. Cooke, Stoke St. Mary. Second, Lady J. Cornwallis, Staplehurst. Third, G. Chadwin, Salisbury.

DORKING (White).—Plate, Mrs. H. Fookes, Whitechurch, Blandford. Second, and Third, Rev. G. F. Hodson, North Petherton, near Bridgewater.

COCHIN-CHINA (Cinnamon and Buff).—Plate, Mrs. H. Fookes, Blandford. Third, R. Everett, Monmouth. (Second withheld).

COCHIN-CHINA (Grouse and Partridge-feathered).—First, J. Bolton, Wynn Street Birmingham. Second, Mrs. H. Fookes, Blandford.

COCHIN-CHINA (White and Black).—First, G. C. Whitwell, Kendal. Third, E. Pigeon, Lymington, Devon. (Second withheld).

MALAY (Coloured).—Plate, C. Ballance, Taunton. Second, J. J. Fox, Devizes. Third, G. F. Nicholls, the Moors, Cheltenham.

MALAY (White and Black).—Prize, C. Ballance, Taunton.

GAME (Black-breasted and other Reds).—Plate, S. Dupe, Evercreech, Bath. Second, Rev. G. S. Cruwys, Tiverton. Third, W. T. Everett, Ashby-de-la-Zouch. Highly Commended, Rev. G. S. Cruwys; Mrs. W. A. Sandford, Nymechad Court; J. Scarlett, Taunton. Commended, J. H. Braikenridge, Bath; H. Ball, Taunton.

GAME (Duckwings and other Greys and Blues).—First, Rev. G. S. Cruwys, Tiverton. Second, S. Dupe, Bath. Third, W. Long, Devizes.

GAME (White, Black, and Piles).—First and Second, Rev. G. S. Cruwys Cruwys Moorhead, Tiverton.

HAMBURGH (Gold-pencilled).—Prize, W. R. Elliott, Plymouth.

HAMBURGH (Gold-spangled).—Prize, W. R. Elliott, Plymouth.

HAMBURGH (Silver-pencilled).—Plate and Second, T. Keable, Berks. Third, Miss H. M. King, Walford, near Taunton.

HAMBURGH (Silver-spangled).—First and Third, Mrs. Pettat, Overton. Second, Lady J. Cornwallis, Staplehurst.

POLAND (Black with white crests).—First, G. S. Fox, Somerset. Third, G. Ray, Lyndhurst. (Second withheld).

POLAND (Golden and Silver).—Plate, H. Child, jun., Birmingham. Second, F. Hardy, Yorkshire. Third, Mrs. Pettat, Overton. Highly Commended, Mrs. Pettat.

PEA FOWL (Pheasants and Gallinæ).—First, S. Pitman, Taunton. Second, H. Adney, Lymington, Devon.

ANY OTHER VARIETY NOT COMPRISED IN THE BEFORE-MENTIONED CLASSES. —First, S. Pitman, Taunton (White Spanish). Second, Miss S. H. Northcote, Exeter (White Spanish). Third, J. H. Craigie, Essex (Erahma).

SPANISH (Chicken).—First and Silver Medal and Second, J. R. Rodbard, Bristol. Highly Commended, W. K. Elliott, Plymouth.

DORKING (Chicken).—First, Lady J. Cornwallis, Staplehurst. Second, Major W. S. Cook, Stoke St. Mary.

COCHIN-CHINA (Chicken).—First, Miss A. Willcox, Bristol. Second, Mrs. Herbert, Powick, near Worcester. Highly Commended, R. Everett, Monmouth; Mrs. H. Fookes, Blandford; Mrs. Herbert; J. R. Rodbard, Bristol.

MALAY (Chicken).—First and Second, C. Ballance, Taunton.

GAME (Chicken).—First, J. R. Rodbard, Bristol. Second, W. Long, Brown Cottage, Devizes. Highly Commended, J. R. Rodbard.

HAMBURGH (Spangled, Chicken).—Prize, W. R. Elliott, Plymouth.

SWEETSTAKES.

SPANISH (Cocks).—Prize, J. Cart, Hatod, Swansea.

DORKING (Cocks).—First, Rev. F. M. King, Walford, Taunton. Second, G. Chadwin, Salisbury. Highly Commended, Mrs. Pettat, Overton.

COCHIN-CHINA (Cocks).—Prize, Mrs. Herbert, Worcester. Highly Commended, J. Cart, Hatod, Swansea.

MALAY (Cocks).—Prize, C. Ballance, Mount Terrace, Taunton.

GAME (Cocks).—Prize, J. R. Rodbard, Bristol.

HAMBURGH (Cocks) (Pencilled).—Prize, T. Keable, Lambourne, Bucks.

HAMBURGH (Cocks) (Spangled).—Prize, Lady J. Cornwallis, Staplehurst.

GAME BANTAM (Cocks).—Prize, G. Chadwin, Tolland Royal, Salisbury.

BANTAMS (Gold-laced).—First, Rev. G. S. Cruwys, Tiverton. Second, Rev. G. F. Hodson, North Petherton, near Bridgewater.

BANTAMS (Silver-laced).—First and Silver Medal, Rev. G. S. Cruwys, Tiverton. Second, Miss G. Everett, Monmouth.

BANTAMS (White).—First, Rev. G. S. Cruwys, Tiverton. Second, Mrs. W. A. Sanford, Nymechad Court.

BANTAMS (Black).—Prize, Rev. G. S. Cruwys, Tiverton.

BANTAMS (Black or Brown Red Game).—Plate, Mrs. E. Everett, Monmouth. Second, J. G. Price, Wellington, Somerset.

BANTAMS (Duckwing Game).—Plate, J. Camm, Southwell. Second, Mrs. Chadwin, Salisbury. Highly Commended, Mrs. Pettat, Overton; C. Ballance, Taunton.

TURKEYS.—Plate, Mrs. H. Fookes, Blandford. Second, Miss J. Milward, Bath. Third, Miss E. Everett, Monmouth.

GEESSE.—Plate, Mrs. Seamons, Bucks. Second, Mrs. H. Fookes, Blandford. Third, E. Pigeon, Devon.

DUCKS (Aylesbury).—Plate and Second, Mrs. Seamons, Aylesbury, Bucks. Third, E. Carlyn, St. Austell.

DUCKS (Rouen).—First, J. H. Braikenridge, Chew Magna, near Bristol. Second, Mrs. H. Fookes, Whitechurch, Blandford. Third, W. R. Elliott, Plymouth. Highly Commended, J. H. Braikenridge.

DUCKS (Black East-Indian).—Plate and Third, C. Ballance, Taunton. Second, G. S. Sainsbury, Ilwode, Devizes. Highly Commended, G. S. Sainsbury; C. Ballance. Commended, Rev. J. White, Bruton, Somerset.

PIGEONS.

CARRIERS.—First, F. G. Stevens, Axminster. Second, Major Hassard, Hailsea, near Portsmouth. Highly Commended, Major Hassard.

TUMBLERS.—First, H. Adney, Lymington, Devon. Second, T. W. Lowson, Laigate, Beverley. Highly Commended, F. G. Stevens, Axminster; T. W. Lowson, Laigate, Beverley. Commended, S. W. Norman, Oakley, near London.

OWLS.—First, F. G. Stevens, Axminster. Second, W. Squire, Hanwell, Middlesex. Highly Commended, F. Key, High Gate, Beverley; T. W. Lowson, Laigate, Beverley; J. G. Price, Wellington, Somerset.

NUKS.—First, J. B. Edge, Aston New Town, Birmingham. Second, F. G. Stevens, Axminster.

TURBOTS.—First, T. W. Lowson, Laigate, Beverley. Second, F. G. Stevens, Axminster. Highly Commended, Major W. S. Cook, Stoke St. Mary.

JACOBS.—First, F. G. Stevens, Axminster. (Second, withheld.)

FANTAILS.—First, Major W. S. Cook, Stoke St. Mary. Second, F. G. Stevens, Axminster. Third, J. B. Edge, Aston New Town, Birmingham.

TRUMPETERS.—First, F. G. Stevens, Axminster. Second, F. Key, High Gate, Beverley. Highly Commended, Miss Elliott, Osborne House, Taunton.

POWERS.—First, F. G. Stevens, Axminster. Second, T. W. Lowson, Laigate, Beverley.

BARBS.—First, F. G. Stevens, Axminster. Second, no competition.

RUNTS.—First, F. Key, High Gate, Beverley. Second, F. G. Stevens, Axminster. Highly Commended, E. Pigeon, Lymington, Devon.

DRAGONS.—First, J. B. Edge, Aston New Town, Birmingham. Second, S. Summerhayes, Taunton. Highly Commended, E. Pigeon, Lymington, Devon; T. F. Brand, Newton Abbott; W. Squire, Hanwell, Middlesex.

ARCHANGELS.—First, F. G. Stevens, Axminster. Second, Miss J. Milward, Newton St. Loe, Bath.

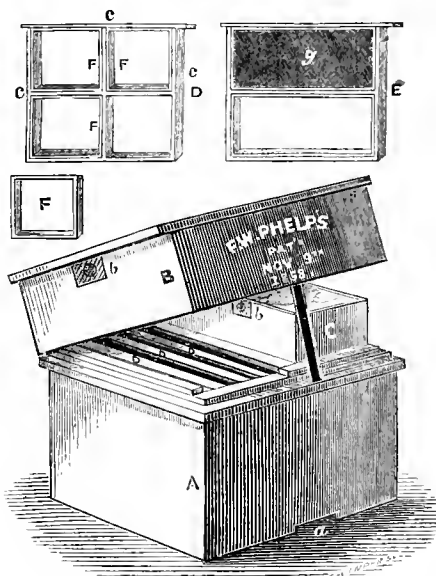
ANY OTHER VARIETY.—First, F. G. Stevens, Axminster (Iceland). Second, S. Summerhayes, Taunton (Porcelain). Highly Commended, Miss Elliott, Osborne House, Taunton (Porcelain).

Mr. Stevens, of Axminster, took the Silver Medal for the most first prizes in Pigeons.

THE BIRMINGHAM CATTLE AND POULTRY SHOW.—A meeting of the Council was held on May 30, C. M. Caldecott, Esq., in

the chair, when the prize lists and regulations for the thirteenth annual Exhibition, to be held on the 2nd, 3rd, 4th, and 5th of December next, were agreed upon, and will be issued immediately. The new lists will, we think, be satisfactory to exhibitors and to the members of the Society generally, some judicious changes having been made, and particularly in the poultry department. The special prizes this year are also more numerous than in any previous list, and cannot fail to insure a spirited competition. Since the last Show the members of the Poultry Committee have undertaken a complete revision of the poultry prize lists, and the changes recommended by these gentlemen were unanimously adopted by their colleagues in the Council. The total amount offered in prizes has been increased, while there are numerous changes in the mode of its distribution, and such as appear well calculated to increase the attractions of the Show. In future also, the principal classes will comprise pens of a cock and two hens or pullets, instead of a cock and three hens or pullets—an alteration which will, no doubt, be satisfactory both to exhibitors and purchasers.

PHELPS' PATENT BEE-HIVE.



THE above cut, with the accompanying description, is furnished us by our correspondent "H. B. G."

Fig. A represents one of E. W. Phelps' bee-hives, patented November 9th, 1858. *a* represents a passage for the bees. It can be made larger or smaller by use of a piece of board or block. Some are made 12½ inches wide, 12½ inches high, and 16 inches long, inside measure, and filled with ten frames, D, E. I prefer the case 14 inches square, with nine frames to winter in, as it is taller.

B represents the cover raised to show the frames D D D, and honey-boxes, C. *b* represents a ventilator. Fig. D represents a honey-frame, and is placed in each end of the hive. *c c c* represent the outside frame, *f f f* little frames inside.

The following are some of the advantages claimed over other frame-hives:—

1st. The hive can be made any desirable height, and the comb not warp or break in handling.

2nd. Late swarms many times fill their hives part full, not sufficient to winter them. In this case the empty frame can be taken out (which will be the lower one) and a full one put in its place, filling the hive full of comb, honey, and bees.

3rd. Many times there are from 5 lbs. to 20 lbs. of honey remaining in the hives in the spring. In this case it can be removed in good shape for use or market without disturbing the brood.

4th. Many times there is too much drone-comb in the hive, the frame containing such can be placed at the top of the frame, and when filled with honey be removed, saving the comb; also preventing the rearing of too many drones.

5th. To facilitate early breeding the brood-comb can be raised at the top, as in cut E, letter g, while the bees are hovering on the comb below or making new, preventing the chilly air from destroying the brood.

6th. If bees are wintered in a proper bee-house, they many times do not empty comb enough to raise brood in. In this case remove the best pieces, and the bees will fill them with brood-comb.

7th. The bees will leave a winter's passage at the bottom of the top frame, which is necessary in large sheets. Many using the single frame even go to the trouble of taking each frame out and cutting it through.

8th. In case of the loss of a queen, the frame or section containing the queen cell or eggs can be removed, without cutting or marring the rest of the comb.

9th. Should the moth destroy a part of the sheet the portions can be removed, the balance not disturbed, not even with the knife.

10th. The bottom is not made fast. All the filth can be removed that gathers there without disturbing the bees or frames.—(*Prairie Farmer*.)

[The above is an American's ingenious mode of evading Langstroth's Patent.]

THE WOODBURY COMB-BAR.

ON the 15th of June I hived a fine natural swarm of Ligurian bees in a frame-hive, fitted with the improved comb-bars, but entirely destitute of guide-comb. Nine days later I examined the combs, and found the foundations laid with the utmost exactness, upon the centre of each bar. I need hardly say that this proof of the complete success of the new comb-bar was highly satisfactory to—A DEVONSHIRE BEE-KEEPER.

BEE FOOD.

MUCH has been written on the subject of a substitute for the natural food of bees, and, in particular, ingenuity was often taxed during the last disastrous autumn and early spring, to place within their reach the means of sustaining life and health. At the close of the working-season there is, doubtless, nothing so good as honey; but even this was not everywhere obtainable, and is often expensive. A friend of mine in a southern county was in this dilemma, when his attention was directed to an unusual activity amongst his bees, and found that it arose in consequence of the presence, in an adjoining grocer's yard, of an open cask of molasses, or treacle, which the invaders were appropriating to their own use with much avidity. The hint was not thrown away, and a mixture was soon concocted of treacle, flavoured with a fourth or fifth part of honey diluted with water, and a little dash of rum, boiled together, I believe, for a short time. With this cheap compound, the bees were healthily sustained through a trying season, and swarmed earlier than usual. Indeed, the instances were rare of any stocks remaining in existence in the neighbourhood. I have heard objections, real and imaginary, raised against the use of treacle; but I submit these remarks for the consideration of bee-keepers.—AN OLD APIARTAN.

RHUBARB WINE.

SEEING that the makers of this wine put themselves to a deal of unnecessary trouble, I determined last season to give a hint on the way I do it if I was spared till another season, and it is simply this:—Instead of pounding and thumping with a mallet, or any other instrument, if the Rhubarb is clean I do nothing more than cut the leaf off, then the part that is underground; then cut it into any convenient length, say cut the stick in two, if the vessel you are going to put it in will take it that length; then slit it down in slices, say as thick as the number of THE COTTAGE GARDENER, or take hold of one end of the whole stick and shave it off in shavings as though you were shaving a deal stick to make spills, only thicker, and, of course the breadth of the stick of Rhubarb. I let it stand nine days in the water; then I take up the Rhubarb with my two hands, give it a squeeze as I pull each lot out. I have a coarse cloth over another vessel, I place the Rhubarb on that to drain. When it has run most of the juice out I take up the cloth and give it a twist or two, and

a few good squeezes and the work is done. Now, without any pounding or using a press, you will have all the virtue out of the Rhubarb, and the wine will fine much sooner and better than with all that extra trouble, and I am sure quite as strong, if not stronger. I do not say anything about any of the other processes of the making of the wine, as that is, perhaps, better understood than I understand it myself; but I may say this, I put no brandy or other spirits in my wine—nothing but sugar and a little ginger, and a lemon or two. I merely write to try to save some of my fellow subscribers from some of their labour; but I do not expect all will fall in with my way at once, because I have a good proof that people are not easily turned out of their old way; for although I beat all my neighbours in my wine, and they acknowledge mine the best, still I have not pounded it out of them to leave off pounding the Rhubarb yet, or to leave off putting brandy in it; they say it is impossible to get the strength out of it without pounding and pressing. But let them do it my way, and then pound and press after, and see how much strength they will get out. If you think this, or any part of it worth a place in *THE JOURNAL OF HORTICULTURE*, well; if not, cast it away.—WORCESTER.

VARIETIES.

NAMES OF PLANTS.—Some of our readers have at times experienced difficulty in mastering and retaining the seemingly crabbed names employed by botanists to designate plants, and it may truly be asserted that some of them are, indeed, rough, uncouth, and harsher than our

"Northern whistling, grunting guttural,
Which we're obliged to hiss and spit and spatter all."

Such names as *Schleicheria*, *Zauchneria*, *Eschscholtzia*, *Scheuchzeria*, &c., in my humble opinion, should not have been adopted. Not that they are difficult to retain in the memory, but because they are harsh and do not conform to the genius of the Greek and Latin languages, from which scientific terms are generally derived. Moreover, a name should convey a meaning having some bearing upon the subject, descriptive of its qualities, thus becoming an aid to the memory, and readily recalled by association. Exception may be made in favour of naming in honour of those who have advanced the science of botany by explorations, special study, &c.; but in this case those only who have distinguished themselves should be thus commemorated, and harsh, uncouth names rejected. Linnæus adopted this custom, and honoured several of his patrons and pupils after this fashion. Thus the *Celsia* was named after Celsus, one of his earliest benefactors. The *Kalmia*, abounding in our woods, and so well known in English gardens, but a stranger to our own, commemorated his friendship for Professor Kalm, his pupil and fellow labourer, and who first presented this beautiful plant to his teacher. Linnæus well observes in his "*Critica Botanica*," concerning this practice of bestowing celebrated names upon genera of plants, that a "proper connection should be observed between the habits and appearance of the plant and the name from which it has its derivation." The *Andromeda*, a beautiful little gem, much resembling the Heath of England, and belonging to the order Ericaceæ, and one of the best representatives of the Heath in America, may be cited in illustration. The buds are of a blood-red hue before they expand, but when fully blown the corolla is of a flesh colour. During his Lapland tour, Linnæus found this plant in abundance adorning the marshy ground with its delicate blossoms; and as he admired its beauties, his imaginative mind was struck by a fancied resemblance between the appearance and circumstances of this plant and the story of *Andromeda* as related by the Greek poets. "A maiden of exquisite beauty chained to a rock amid the sea, and exposed to monsters and venomous serpents. This lovely little flower," he said, "is her vegetable prototype. Scarcely any painter could so happily imitate the beauty of a fine female complexion, still less could any artificial colour upon the face bear comparison with this lovely bloom. I find it always fixed upon some turfy hillock amid the swamps, and its roots bathed by their waters. In these marshy and solitary places toads and venomous reptiles abound. And just as in the case of *Andromeda*, Perseus comes to deliver her from her dangers by chasing away her foes; so does the summer, like another Perseus, arrive, and, drying up the waters that inundate the plant, chase away all her aquatic enemies, and then she carries her head (the capsule), which before had drooped pensively, erect, and displays

her beauties to the sun." Pleased with the idea, he chose for this flower, which is the type of a new genus in the system he was arranging, the name *Andromeda*. Other illustrations of the application of this canon of Linnæus may be found in the *Scheuchzeria*, a grassy alpine plant, named from the two *Scheuchzers*, one of whom excelled in the knowledge of alpine plants, and the other in that of grasses. Also, in the *Hernandia*, an American plant, named after Hernandez, a naturalist sent out to Mexico by Philip II., of Spain, and said to have been given to the plant, which has large leaves and small flowers, in allusion to the great opportunities afforded to the naturalist and the little use he made of them. And, again, the *Buffonia* received its name in honour of the celebrated Count de Buffon, while one of its species was called the *Slender-leaved Buffonia*, by Linnæus, on account of the slender pretensions to botanical science which that naturalist possessed! Linnæus selected, as an emblem of himself, the *Linnaea borealis* (so named by Gronovius), which he describes as "a little northern plant, flowering early, depressed, abject, and long overlooked; and then traces a resemblance between this flower and his own early lot. Like it, unfolding in a remote northern region, without the gifts of fortune or the means of cultivating his natural powers, he was long unknown and overlooked. Indigent and of scarce, he pursued in secret his scientific researches, exploring the recesses of Nature, tracking her footsteps to her remotest retreats. Mountain and glen, forest and moor, alike yielded up their treasures to the ardent inquirer, who came forth, after a season, enriched by the spoils he had collected, and which, arranged in a new and beautiful order, he presented to the surprise and delight of kindred minds in every region. Then, indeed, his resemblance to the humble flower of his choice ceased, and men of science in every civilised country pressed forward to avail themselves of his discoveries and share in his pursuits, and the clouds that had gathered around his youth were dissipated, while for the last forty years of his life he saw himself surrounded by the honours and emoluments his country and his king had bestowed upon him, and enjoyed the chosen delights of his heart amid a host of pupils who honoured and loved him as their friend, the instructor and then benefactor.—(L. Haddonfield, in *American Gardener's Monthly*.)

OUR LETTER BOX.

BANTAM LAYING TWO EGGS (*Veritas*).—It is quite certain that Cochinchina hens occasionally lay two eggs in one day; therefore, we know of no reason why a Bantam hen should not do the same—therefore, your man, probably, is correct.

WHITE SPANISH FOWLS (*Justow*).—We totally differ from you when you say that these ought to have white faces. The red face looks far better contrasting with their plumage. They are called White Spanish, but they more properly should be called White Minorcas.

SPANISH LOOK WITH DISTASTED EYES (*M. H. M.*).—Give him castor oil, a tablespoon at a time, and repeated as often as it seems necessary at intervals of twenty-four hours. Rub the discoloured spots with compound sulphur ointment. You do not say whether he appears to suffer in health, nor whether the closing of the eye is the result of swelling of the white face, or its gradual and healthy increase.

PIGEONS LAYING BUT NOT SITTING.—"C. B. W." does not state how many Pigeons have laid the twelve eggs he speaks of, nor does he give us any clue to guess the cause. Are the Pigeons properly paired? or are there some odd hens? When snort of cocks, two hens will, not infrequently, purr, build, and lay two eggs each; if this were continued three times it would amount to the dozen eggs. In that case, the obvious remedy would be to provide two cocks for these unhappy hens.—B. P. E.

RABBITS (*J. E.*).—Putting the doe to the buck, will not prevent her suckling her young ones.

GOLD FISH (*Dubious*).—Draw off the water almost entirely every day by means of a syphon. A piece of Indian-rubber tube makes the best of syphons for emptying a glass globe, it is so flexible and n anagenable. River water should be employed. We keep a few aquatic plants in our aquarium, and give the fish a very few small pieces of vermicelli daily. There should be some clean pebbles and sand at the bottom of the globe for the fish to scour against.

LONDON MARKETS.—JULY 1.

POULTRY.

We remain much as we were last week. The supply is good, but not large, and the demand is quite equal to the average of late years. We may soon look for a falling off in trade, and this will affect our returns.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	5 0	to 5 6	Guinea Fowls.....	0 0	to 0 0
Smaller Fowls.....	3 6	4 0	Larks.....	2 6	3 0
Chickens.....	2 3	2 6	Pigeons.....	0 7	0 8
Ducklings.....	2 6	3 0	Rabbits.....	1 4	1 5
Geese.....	5 6	6 0	Wild.....	0 7	0 8

WEEKLY CALENDAR.

Day of M th	Day of Week.	JULY 9-15, 1861.	WEATHER NEAR LONDON IN 1860.										Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.		Sun Sets.	Moon Rises and Sets		Moon's Age.		
				deg. deg.			m.	h.	m.	h.	m.	h.	m.	s.
9	Tu	Helianthus.	30.141-29.993	70-48	E.	—	56	af 2	14	af 8	53	a 8	1	4 52
10	W	Campanulas.	30.029-29.951	65-49	E.	—	57	2	13	8	13	9	2	5 1
11	Th	Veronicas.	29.985-29.930	73-44	E.	—	58	3	13	8	32	9	3	5 9
12	F	Anchusa.	29.972-29.883	74-41	E.	—	59	3	12	8	49	9	4	5 17
13	S	Centaurea.	29.901-29.788	75-50	N.E.	—	—	iv	11	8	7	10	5	5 25
14	Sun	7 SUNDAY AFTER TRINITY.	29.800-29.768	75-48	S.W.	—	1	4	10	8	23	10	6	5 31
15	M	Pentstemons.	29.840-29.791	71-47	S.W.	.01	2	4	9	8	50	10	7	5 38

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 75.2° and 51.2° respectively. The greatest heat, 93°, occurred on the 14th in 1847; and the lowest cold, 37°, on the 9th in 1856. During the period 141 days were fine, and on 90 rain fell.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 252.)

WREATHS, &C., FOR DECORATIONS.



HERE are sometimes great difficulties in making the wreaths which are now so often used for Christmas decorations. They are often made in ways that take up a great length of time; whilst in all these arrangements most frequently the simplest sort and quickest done are often the most graceful.

Some take strips of calico and sow the foliage on to them; others prepare long stiff cords, and bind it down upon them; and a third party, who, I think, do best, take a succession of small green branches, and bind them continuously together without any other support than that afforded by the overlapping stems.

In proceeding thus, the first piece of green used for commencing the wreath should have a longish stem, and all the pieces should have a few inches left of bare stem for binding over.

All the pieces should be trimmed into a proper size for the thickness of the wreath. For twining round pillars the wreaths can hardly be made too large; and when there is not material sufficient to make them really handsome (and they do take an enormous quantity), I think it looks much better to have one immense drooping wreath of Ivy and spreading Fir placed round the top or capital of each pillar, the entwining of the shaft meanwhile being left quite unattempted.

A very pretty way of decorating any large massive piece of stonework—a font, for instance, if in a church, or a statue, or a doorway, or for deeply-cut niches, as for a window-frame, is to take a few flat fan-shaped branches; and without any attempt at fastening, to lay them down in the manner of a wreath round the base of the pedestal, or in the angle of the recess, or along the front of a sculptured niche. In arranging the decorations of a hall or gallery filled with statuary, this would be found a most rapid and effective plan.

For all these purposes variegated foliage is not generally much to be recommended; and when it is used it should never be mixed with any of a darker kind. The only way in which I think it looks really well is in a massive wreath hung in the strongest light; and in a place where it will either produce a harmonious effect of colour, or where it will be near enough to the eye to be distinctly recognised as what it really is. It should never be used on a background of green, whether light or dark—unless, indeed, the foliage is very nearly white. Even then, however, dark green is very cold and heavy for it to rest against.

From some effects of colour I have observed lately out of doors. I fancy that a dark bluish-purple would be a rather good contrast; but this does not sound very natural, and I cannot answer for its success in practice.

For the large green wreaths I should recommend the use of a great quantity of Fir branches. Some Box might be used, but I should keep it all for the smaller wreaths where these are required also; then Portugal Laurel does pretty well, Ivy the best of all, and common Laurel tolerably. Holly looks very bright and glossy, but it must have no berries; and Laurustinus would be very useful sometimes if it were not for its too numerous flowers, which in a very large-scale wreath are not admissible.

For picture-frames and looking-glasses nothing looks more beautiful than a wreath of Arbutus adorned with its scarlet berries; Laurustinus and Snowberries being thickly intermixed, and the whole crowned by a little bouquet of the various mingled greens. Fern leaves are most useful for such central bouquets; and on a larger scale in some cases, as in harvest time, a triumphal arch crowned with handfuls of ears of corn, arranged one up and one down, and tied together loosely in the middle, is very appropriate and very pretty. I always wonder very much that in the apple counties the beautiful bright red fruit is not more made use of for open-air decorations. I never once remember seeing it, and yet how very beautiful the glowing crimson fruit looks clustering amongst the leaves.

In the apple counties I know it used to be “not the thing” to have apples brought to table; but this rule, I think, is being properly broken through now that prize fruit is thought so much of; so perhaps in this case also it will become more sought for—there may be a chance of some of the bright colouring which those peculiarly bright-faced little crab-like Apples would lend to an arch in autumn.

For very small wreaths for following the lines in delicately carved woodwork, or for the tracery of an open device in wire, the little pieces of Box are the very best of any, where, as is usually the case in England, a sufficiency of Myrtle is not to be obtained. These little sprays are far better when of a naturally compact and branchy shape. They cannot be, indeed, too neat, and can scarcely be too short; as the shorter each piece is, the closer and neater generally is the wreath itself.

In all these arrangements we are supposing no flowers to be used, the green alone forming the ornament.

When, however, flowers are added I have found it to answer best to put them in after the wreaths are fastened in their places. Often it is easy to slip in the stalks; otherwise, when mounted on wood or wire, it will pierce the mass of foliage, and at other times a little wire may be necessary to attach the flowers easily. The flowers should be carefully made to follow in the fall of their foliage the direction of the leaves, although it seems useless to strive against the one great objection to making them up together—that of the time the wreaths take making, and the rough treatment which they have

to suffer. The flowers being unattached, can very easily be removed and replaced if they fade too quickly, and I am to say how long I have known the green itself continue to look well, fully extending over all the season of the Christmas gaieties.

DESIGN FOR WREATH.

I can hardly decide what would do best for this design. I think that a cipher surrounded with a wreath perhaps is the best, as it includes both green and coloured work.

Say, then, that the device is to be a cipher or a motto on a shield surrounded by a wreath.

The letters should first be traced upon the stiff piece of canvass stretched on a hoop. Card would do, but canvass is far better. The very simplest-shaped old English letters are the best to use; and after they are drawn in outline upon the canvass a strong solution of gum should be laid all over it, omitting with great exactness the spaces of these said letters. The whole ground should then be closely covered with Snowberries or some other white berry, or with white everlastings, or, in fact, with anything in the vegetable world that can be made look really white and pretty while retaining a flat surface. If flowers are used, the gum will perhaps be exchanged for the use of needle and thread.

Or, if the letters can be provided for in flowers, the ground may be all of Holly berries, which, though I name it last, I the most advise; but Christmas time is a difficult one to provide for, and I want this device to serve for use then as well as in the summer time, when scarlet and white Verbenas are waiting to fill the canvass.

The ground being prepared, the letters have to be filled up very closely and fully; and it is sometimes even well with a pair of scissors to clip off any leaf or petal which creeps beyond its bounds. Scarlet looks well for the letters, but nothing better than golden words on white.

For the frame a prettily shaped piece of green should be laid either way in the hand, and bound together across with some feathery pieces rising from between. The wreath should then go on each way; and I may here mention that acorns and Oak leaves in autumn, and Laurel leaves at other seasons, make a beautiful frame-wreath even quite alone, especially when the scene and the devices are of a warlike kind. Otherwise a beautiful spray of Arbutus and Snowberry, with Laurustinus at the top and a sort of knot of the same underneath the frame, would best combine the two separate lengths; each drooping downwards if of a creeping kind of foliage, or pointing upwards if of the Laurel class, and being made tolerably even as to their size.—E.

(To be continued.)

FERTILISATION OF WHEAT—THE HYDROMETRIC BELT.

WHEN I said that the explanation of the process of natural fertilisation of the Wheat plant by "H. C. K., — Rectory, Herefordshire," was just what I deserved, I did not mean to acknowledge that I, or any one, deserved to be laughed at, as he surmised, for an error in the explanation of a natural fact, and I am quite sure that no one will laugh at him for falling into a very great mistake. He, too, was like the farmers, too late in his examination of the crop of this year; and I shall hold him in my grasp as firm as the basis of botany for the space of twelve months, as the first of my pupils in the corn-trade crossing; and early in June next, if he will pay the expenses, I shall engage to go down to the borders of Herefordshire—that is, to the Malvern Wells, and if I shall not be able to show him the pollen of the Wheat, which, from his letter, I am quite sure he has not yet seen; also, if I am not able to show him the anthers full of pollen and split, and empty of all traces of pollen before they start from their sessile position, why I shall defray our bill at the "Wells" for a week, if he chooses.

How I make out from his letter that he was behind time is thus accounted for. "When the ear is rising out of the sheath the whole of the anthers are green and immature," and "when it (the ear) is completely clear of the sheath the blossoming process commences at the upper part of the ear." That is just what I said was the Royal Agricultural Society's shortcoming. They were three weeks or a month behind Nature, and this gentleman is not one whit before them in his knowledge of the natural crossing of the Wheat. It is curious to note that in the *Leschenaultia* the anthers and stamens, after discharging the pollen, dry up and wither in the centre of the flower when it is yet in the condition of a very small flower-bud; while in this genus, or at least the anthers of the Wheat "are green and immature," according to my first pupil, ten days after the pollen is shed. I recollect it was in 1842 or 1843 that I first probed Nature for this answer, and I fell into the very same kind of error as "H. C. K." has most certainly committed. Yet there were appearances for which I could not account so clearly as he has done, for he concluded, without observing the fact, that the "husk opens for a brief interval, probably for a few minutes only, when the anthers are mature." The appearances I allude to tell me the husk never opens at all for that purpose. The opening or the closing of the husk, supposing it did open and shut every day for a month, has no more to do with the process, or progress of the pollen than my pen has. The husk shields it from the weather while it is young, and my pen describes the conditions and the mode under which the grain receives its vitality inside the husk. "H. C. K." attempted to make out these conditions and failed, as surely as ever a man failed in this world in any one thing. And I reassert that the Royal Agricultural Society and the farmers are three weeks behind Nature in their time of the flowering of Wheat, and I do hereby challenge all the botanical professors in the country to prove that I am a single shade wrong about the fertilising of the Wheat.

But the great error in my second letter in answer to Mr. Darwin I put in conscientiously, and on purpose to see if there is one man in ten thousand who pretend a great deal on such things without ever looking at them. I mean this for us gardeners only. And, therefore, any one except a gardener who will detect the error will not be entitled to the prize, the hydrometric belt, on which I mean to throw some practical light, and which botanists do not think scientific enough to study, and tell us the reasons for the freaks of flowers in their eccentricities before and after and during their honeymoons. But the hydrometric belt has a wonderful deal more to do with them than most men think of. Suppose a straight jacket to be hydrometric—that is, be like a clothes-line, and "give and take" to the weather, slacken down to a festoon in dry weather, and when it rains tighten up to a straight line. And suppose one in a jacket of that sort, and it to get wet, the consequences would be a tightness about the chest very disagreeable. Now, the under covering of composite flowers, as a Daisy, is like a tight jacket all round the bottom, and is called an involucre; the same thing as the calyx in other flowers, or the "impalement" of old botanists. The impalement is the best name for my purpose. Well, when a composite flower shuts at an evening, as *Gazania splendens* does, though not so much so as other *Gazanias*, it is not the flower's fault, but the misfortune in being clothed in an impalement, or a straight jacket, which gives and takes with the changes of the weather, and always with the change from day to dewy eve. It is not the flower of the Daisy of itself that shuts up, it is merely pressed by the straight jacket, so much that it must compress itself. Now, suppose one of the present fashion of loose jackets, which natural philosophy so much admires in ladies' fashions, to be turned suddenly by the hydrostatic principle to a straight jacket, and to be so tight round one as to cause pain, how would you alter it on the instant, say to save life—no buttons, no loops, or hooks and eyes, recollect, and the lady is fainting? The way I would do would be to get the point of a penknife in under the edge of the jacket, and slash it up gently to the armpits first, and then along the spine at the back, and in front the same, and it would soon be as comfortable as the present fashion of loose jackets. And if you will do the same for a favourite composite flower—slash the jacket, the involucre, and that flower will never shut again. My *Gazania splendens* are open day and night, I slash their jackets, and they get so loose and so comfortable-like that they pay me with their smiles as well at dusk as at dawn of day, and any time between I may choose to visit them. But it is expensive work, slashing five hundred jackets every day in the week must take up a good

deal of some one's time; or even if there be but one bed of it about a place, and that bed an ordinary size—say a circle 6 feet in diameter, all filled with *Gazania splendens*, and eighty flowers opened the first day, how long would it take a boy to slash all their jackets for them? and what is his day's pay? Make out that by figuring. And for the rest of the season say there are from ten to fifteen fresh flowers open every morning and evening, one of them to be slashed daily as they come, how much would it come to from the middle of May to the second week in October? You make the calculation, and let us know the expense of keeping such a bed with open flowers, dull or sunshine, all night as well as in sunny weather, and it rests for me to guarantee the good it will do, and that it will not fail; also that a bed with slashed involucre looks to my eye a finer sight than a plain bed.

But like great discoveries in cross-breeding, this was the result of a process gone through for a very different purpose. I had been foiled in attempts to pollinise the different species; the flowers closed in the afternoon, and the next relay of pistils took up a fresh set of self pollen before the strange pollen could take effect, and I was baffled, and hit on keeping the flowers open from first to last in order to be able to arrest the natural process, and give better scope for the artificial system; and behold just what you have been told. The treatment under which these *Gazanias* were placed in order to get them to seed is the same as that which I suggested last winter—that is, similar to having the plants planted out on a very dry border, but kept moist below for the roots, inside and close to the front of an orchard-house where abundance of air was admitted day and night. The way I keep it powdery dry on the surface is this. When I water the border I give it a thorough good soaking early in the day, and in the afternoon I scrape off a little of the damp surface, and mulch it with an inch deep of dry-as-dust cocoa-nut refuse, like unto brown sawdust, and two such waterings were sufficient during the month of June. The only way to insure a cross in this kind of composite flower is to take the first series of florets round the outsides of the disk or centre. In *Gazania*, two rows of the outside florets come up the first day—that is, the styles of the florets push up out of the tubes carrying up the pollen with them, as all styles of all composites do; but the styles are not then ripe to receive the pollen, but on the second day they are so, and then the top of the style is split into two arms or horns, the real stigma. Well, the first morning nothing is more easy than to blow off all the pollen from the first risers, leaving the pistils bare as pins and as much pointed. Early the next day, or that afternoon, some more styles push up, also with pollen on their sides, below the summit, and these and all the styles in the centre should be most carefully cut off lest the pollen on them should dust on the horns of the first set. These horns or stigmas are to be dusted by the pollen of another kind, and the process is to take a whole flower when its centre styles are fresh up, and touch the stigmas all round with the styles of the strange flower, and the pollen will stick to the stigmas in a way not to be blown off as at first.

Now, here is a pretty experiment by which one can learn more than the value of the best seedling; and if I could enrol a certain number of volunteers to engage it, I would engage myself to give them practice, which requires just as much correctness of eye as shooting at a bull's-eye 800 yards off. But recollect in our damp climate South African composites must not be allowed to close of an evening to mash the pollen with the dew—split up their thick, scaly envelopes into four or six divisions and then you are safe with them. A different process will be necessary for ligulate florets in this order. This is merely the best and surest way with *Aster* or *Daisy*-like flowers which have the centre in simple tubes, *alias* florets.

D. BEATON.

SHARPENING MOWING MACHINES.

I was glad to see Mr. Appleby's observations on mowing machines in your *Journal* lately, and it is to be hoped that they may draw forth some more hints on the same subject from persons as well qualified to give instructions as himself. Not that I think there is so much needed in the way of sharpening the cutters of these machines as some appear to think, but that few persons know how to use them in the most efficient manner.

I myself have watched very many of these machines (by various makers, by hand and horse power) at work, and I have rarely found one that was doing its work as it ought to do, and as it might do: so perhaps it may be of some service to amateurs and

others if I give some simple directions as to the management of them.

When the machine is on the ground and ready to commence work, 1. First see that the cutters are close down upon the flat blade underneath; their being at too great a distance from it is the most ordinary cause of the machine not doing its work properly; they should be so close as to grate very slightly upon it, without impeding their free motion; they will then cut the grass clean, instead of pugging it, and the labour will be all the less. The screws which raise and lower the cutters are generally very simple and easy to understand.

2. Next take care that the cutters are the proper height off the ground; if they are set too high, the work will not be good; if too low, the action will be laborious. If Green's machine is used the chain will probably slip the cogs, which it ought never to do; his machine cannot be set too low, provided there is no slip. With other machines the correct height is easily ascertained by trial.

3. Then oil all the bearings carefully, the axis of the cutters especially; then of all the wheels and the roller, as well as that part where the gear-rods bear on the axis of the roller. See that all these working parts are clear of bits of grass, which are very apt to insinuate themselves, and so create great friction.

N.B.—I have seen one of Samuelson's machines actually without any means provided for oiling the axis of the cutters.

I need scarcely say, beware of stones; I find, however, they are comparatively harmless if the machine is worked rather slowly.

If the grass is very long it may still be easily cut by raising the cutter sufficiently. If it has been left uncut as much as ten days, and is at all long, it will be advisable to turn back, and go over the same strip again, and so on, backwards and forwards. But I find it to be far the best plan not to allow the grass to go more than a few days—say four or five, according to the weather; and then, by passing the machine once over it, the best effect is produced with a minimum of labour.

With regard to sharpening the cutters, I use one of Green's make, so that I am able to speak only of that. I do not know whether his steel is better than that of other makers, but of this I can speak positively—that it will do its work most perfectly for two years, with twelve hours a-week work, and I believe would do it equally well for many more without sharpening at all. I have seen and used all the various machines at different times, and I have come to the conclusion that Green's has many advantages over all others—one prominent one is its lightness. An eighteen-inch by him, when in proper trim, can be worked over any grass by one man with ease, if the ground is not very hilly; whereas I have found a fourteen-inch by other makers too heavy to be worked long by one man without distress.

In conclusion, put a good machine into the hands of a working gardener, and teach him thoroughly how to adjust it; and, after a week or two's work, I shall be much surprised if he wishes to go back to his old scythe. I am in the habit of using my machine (eighteen-inch) a good deal myself in all weathers for the sake of the exercise, and I find that for two hours at a stretch I can do single-hand the work of five or six men with the scythe and besom.—H. C. K., — *Rectory, Hereford*.

TRAINING MELONS.

I HAVE read with attention Mr. Fish's remarks on Melon culture last month, and have followed his directions in the training of my plants. I should be glad if he would enlighten me on the following point: My fruit is now set nicely, how must I proceed with the after-training of the plants? I have three secondary shoots to each, and some tertiary. I allow one fruit to each secondary. All the eyes of the secondary shoots are cut out except those which have given me four tertiary to each. Now, must I let them grow as they please, or are they to be allowed to spread no further?—C. H.

[By what you state, if we understand aright, you have three fruit to each plant. The tertiary shoots, therefore, on which there is no fruit will be of no farther use at present than keeping up a good, vigorous root action in the plant. These, therefore, may be stopped as they grow by nipping out the points, or even removing a small one, when room cannot be found for it. The more good foliage there is exposed to the sun the better will the fruit be. A great thicket of foliage is undesirable, because much

of it must be shaded. If this stopping or thinning is done every day or every other day, the plants will never need much at a time, and the fruit will experience no check. These fruits as they swell will lessen mere vigour of growth, and the stopping throws more strength into the fruit. It will not be easy to set any fruit on these laterals whilst the fruit is swelling; but if you wish a second crop from the same plants, the young fruit on these laterals will set freely when the first fruit is ripe and gathered. For very fine fruit, however, it is often desirable to plant again for succession; for unless water is given from beneath, it is not easy to retain fine, vigorous, healthy side shoots, and high-flavoured fruit, too, though by the above mode it may be done and very successfully.]

LIST OF HERBACEOUS PLANTS.

IN answer to "A SUBSCRIBER." There is such an immense number of good herbaceous perennials, that it is a difficult task to select a few species for a garden, unless we knew the extent of borders or beds that are to be furnished. A good collection of hardy perennial border flowers judiciously planted and well managed afterwards would be very interesting, and would furnish flowers for nine months in the year. A good manual on their culture with a catalogue is a desideratum. We hope some day to publish one. In the meantime, in answer to your query, the following will perhaps suit your purpose, or you may select from them.

Aconitum Anthora, 1½ ft. Yellow, July.
 + *chinensis*, 4 ft. Blue, Sept.
 + *venustum*, 3 ft. Blue, June.
Aetna spicata, 3 ft. White, May.
Adonis vernalis, 1 ft. Yellow, March.
 + *Adonis vernalis*, 1 ft. Yellow, March.
 + *Ajuga pyramidalis*, 6 in. Blue, May.
 + *Alyssum saxatile*, 1 ft. Yellow, April.
Anchusa longifolia, 3 ft. Blue, July.
Anemone apennina, 6 in. Blue, April.
japonica, 2 ft. Rose, Sept.
 + *pulsatilla*, 9 in. Violet, May.
sylvestris, 6 in. White, May.
Anthriscus filastrum, 1 ft. White, June.
Aquilegia canadensis, 2 ft. Orange, June.
 + *glauca*, 1 ft. Blue and white, June.
Skinneri, 1 ft. Red, May.
Arabis alpina, 6 in. White, April.
incisa, 1 ft. White, June.
Asclepias amplexicaulis, 2 ft. Red, July.
 Douglasi, 1½ ft. Red, Oct.
 + *taberosa*, 2 ft. Orange, August.
 + *Asperula odorata*, 1 ft. White, May.
tiarctia, 1 ft. Pink, July.
Asperula lutea, 3 ft. Yellow, June.
 + *ramosa*, 2 ft. White, April.
taurica, 3 ft. White, June.
 + *Aster multiflorus*, 2 ft. Purple, Aug.
concolor, 1 ft. Purple, Oct.
clematis, 2 ft. Blue, Sept.
grandiflorus, 2 ft. Blue, Nov.
grandiflorus, 2 ft. White, July.
multiflorus, 3 ft. White, Sept.
novae-angliae rubra, 6 ft. Red, September.
penicillatus, 2 ft. White, Sept.
pulchellus, 1 ft. Purple, June.
sibiricus, 2 ft. Blue, August.
Aubrietia deltoidea, 3 in. Purple, April.
purpurea, 3 in. Purple, April.
Betonica grandiflora, 1½ ft. Purple, May.
serotina, 1½ ft. Red, Aug.
speciosa, 1½ ft. Purple, June.
Buphthalmum salicifolium, 1½ ft. Yellow, September.
 + *Callia palustris* flore pleno, 1 ft. Yellow, April.
Campanula carpatica, 1 ft. Blue, July.
 alba, 6 in. White, June.
caucasica, 1 ft. Purple, July.
 + *coronata*, 1½ ft. White, July.

+ *Epimedium alpinum*, 9 in. Crimson, May.
 + *grandiflorum*, 1 ft. White, April.
 + *violaceum*, 9 in. Violet, April.
Funkia albo-marginata, 1½ ft. Lilac, July.
subcordata, 1 ft. White, Aug.
 + *Gazania splendens*, 9 in. Orange, June.
Gentiana acaulis, 3 in. Blue, May.
 alpina, 3 in. Blue, July.
 + *cristata*, 1½ ft. Red, July.
 + *pratensis flore pleno*, 2 ft. White, May.
sanguinea, 1 ft. Crimson, July.
Wallichiana, 9 in. Striped, July.
 + *Geum coccineum*, 1 ft. Scarlet, August.
 + *Helianthus multiflorus* flore pleno, 3 ft. Yellow, August.
 + *Helicoborus niger*, 9 in. White, January.
olympicus, 1 ft. Purplish-green, June.
Hemerocallis flava, 2 ft. Yellow, June.
 + *fulva flore pleno*, 4 ft. Copper, July.
Sieboldi, 2 ft. Pink, Sept.
 + *Hepatica triloba*, All the varieties 6 in. April.
 + *Hieris sempervirens*, 4 in. White, April.
 + *Iris aenea*, 1 ft. Blue, May.
trugans, 1 ft. Blue, white, and purple, June.
graminea, 1 ft. Striped, June.
Pallasi, 2 ft. Blue, May.
 + *Susiana*, 2 ft. Striped, April.
verna, 1 ft. Purple, April.
Lathyrus latifolius, Climber, Pnk. August.
 + *Liatris elegans*, 4 ft. Purple, Sept.
odorata, 3 ft. Purple, Sept.
 + *pumila*, 1 ft. Purple, Sept.
squarrosa, 3 ft. Purple, July.
 + *spicata*, 6 ft. Purple, Sept.
 + *Linum flavum*, 9 in. Yellow, July.
 + *pyrenaicum*, 1 ft. Blue, July.
 + *Lithospermum purpureum coccineum*, 1 ft. Purple, May.
 + *Lobelia erinus*, various, 4 in. June.
 + *fulgens*, 3 ft. Scarlet, July.
 + *sylvestris*, 2 ft. Blue, August.
 + *Lotus corniculatus plenus*, 4 in. Yellow, June.
 + *Lupinus grandiflorus*, 3 ft. Purple, June.
 + *nootkatensis*, 1½ ft. Light blue, May.
 + *polyphyllus*, 2 ft. Blue and white, June.
 + *Lychnis chalcidonicus* flore pleno, 3 ft. Scarlet, July.
Lythrum roseum superbum, 3 ft. Rose, August.
Melissa grandiflora, 1 ft. Pink, July.
Melissa alpina, 9 in. Pink, May.
 + *Monarda didyma*, 1 ft. Scarlet, July.
 + *Myosotis azurea*, 1 ft. Blue, Aug.
montana, 6 in. Blue, June.
palustris, 1 ft. Blue, August.
 + *Oenothera Frazeri*, 1 ft. Yellow, June.
 + *macrocarpa*, 1 ft. Yellow, June.
taraxacifolia, 6 in. White, June.
 + *prostrata*, 6 in. Yellow, June.
Ononis rotundifolia, 2 ft. Pink, May.
 + *Onosma montana*, 1 ft. Yellow, March.
 + *taurica*, 1 ft. Yellow, July.
Orbus coccineus, 1 ft. Scarlet, April.

Those marked thus * will do to furnish a small garden; † a moderate-sized one, and for a large garden the whole selection would not be too many.

T. APPLEYBY.

AMERICAN BLIGHT.

SOME Apple trees in my neighbour's orchard have for many years been notorious for being covered with American blight. On the 21st ult., my neighbour pointed out to me a tree which used to be the most infested, and asked me to try and find an aphid on it. I tried, but in vain—I could not find one; the tree was perfectly free from them. My neighbour, who is a

person to be relied on, assured me that he had looked over the Apple trees in upwards of twenty gardens and all were free from aphides. He is of opinion that the severe frost which took place during Christmas week entirely destroyed them.

Has a similar occurrence happened elsewhere? and if so, what is considered to be the cause?—S.

BEDDING-OUT AT THE CRYSTAL PALACE IN 1861.

(Concluded from page 253.)

THE next place in order is the centre, round the great basin, above the water temples, and up each side to the grand terrace itself: but let us take it from the top, where a Deodar stands on each side in plain circles—that is, without anything but the trees. Here, in a straight row on each side, are seven oblong beds and seven circular beds; each circle with a *Humex* in the centre, *Ageratum* round it, *Flower of the Day* round that, then a ring of *Crystal Palace Scarlet* and an edge of blue *Lobelias*. The seven beds are the same way on each side. The oblongs are all as one on the ribbon race. The centre line all the way down is of the purplish-pink *Nosegay*, or *Fothergillii*—the longest line of one kind of *Nosegay* in England, perhaps; a row of *Cerise Unique* on each side, the two making a combined band of rich rosy pink; then a contrast in a row of *Purple King* on each side of the centre; then *Tropaeolum elegans* on each side, and an edging of *Sweet Alyssum*. Here *Purple King*, in contrast to what is on each side of it, cuts off the orange of *elegans* from the rose of the centre; and the white *Alyssum* edging all round contrasts finely with the blue edging of the circles. Just look to that when you are on the spot; there is more in it than appears on the surface. At the bottom of that run, and round to the *Rhododendron* bed next the walk, is one oblong bed 36 feet long, and, of course, 12 feet in width, that being the proportions in grand places. That large bed has its fellow on the other side like the rest of them. They have four rows of *Tropaeolum elegans* in the centre, two rows of *Purple King* on each side of *elegans*, and *Mangles* for the outside. The curve round the grand basin has three oblong beds, each 30 feet long, and three circles 9 feet through. The three oblongs have three rows of *Ageratum* down the centre, two rows of *Tropaeolum elegans* on each side, and a row of a variegated *Geranium* like *Alma* all round. The middle circle of the three is a little different from the one on each side of it—thus: Young plants of *Cottage Maid* are in the centres of the three circles; the middle circle has *Brilliant* round *Cottage Maid*; and the two end circles *Alma* instead of *Brilliant*. All three are in blue edging.

Now, from the grand central basin off to the right or left to the grand terrace, and you see the *Japan Lilies* among the *Azaleas* and hardy *Heaths*, along with *Pinks*, *Cloves*, *Picotees*, *Anne Boleyn Pinks*, *Poppies*, and *Foxgloves* in the distance, with all sorts of *Larkspurs*, and some other showy plants behind the *Lilies* from *Japan*; and these *Lilies* are now clearly proved to be as hardy as the common white *Lily* of the lodge-gate gardens of England, for not a fibre of their roots was touched by that severe winter, and now they are rising stronger than in former years, as all bulbs do while they are in progress to full properties.

On the grand terrace the bottom rows of oblong beds are in contrast ribbon rows of three colours, the *Crystal Palace Scarlet Geranium* taking the two centre rows, then two rows of *Christina* on each side of the centre, and two rows of *Purple King* on each outside of *Christina*, and all the circles are alternately with *Gazania splendens* and *Tropaeolum elegans*, and both edged with *Flower of the Day*—a grand sight. The half circle of the *Araucarias* in two divisions made by the main centre walk has seven *Araucarias* and seven pedestal-beds in each division, and each half a reflect on the other, with two *Deodars* on each side of the central walk. All the *Araucaria*-beds and these *Deodar*-beds are in blue *Lobelias* on the slope of the mound-beds for the trees, with a line of *Cerastium* at the top and bottom of the slope, leaving a clear space of about 18 inches level on the top for the trees. The seven pedestal-beds in one half of the half circle will tell those in the other half, and here they are—the first pedestal-bed beginning at the bottom of the centre walk between the *Deodars* is thus planted: five rows of *Cottage Maid*, and one outside of *Flower of the Day*; the second is *Agneses superba*, with *Golden Chain* outside edging, and *Flower of the*

Day inside ditto; third bed *Trentham Rose Geranium* in five rows edged with *Lady Plymouth*; then turning round the corner to the *Araucaria* run, the fourth pedestal-bed is five rows of *Cottage Maid* edged with *Tropaeolum elegans*; the fifth with five rows of *Crystal Palace Scarlet Geranium* edged by *Flower of the Day*; the sixth in five rows of *Cottage Maid* edged with *Tropaeolum elegans* again; the seventh, *Trentham Rose* edged with *Flower of the Day*; eighth, *Cottage Maid* and *elegans* again; and the ninth and last, *Crystal Palace Scarlet* and *Flower of the Day*. The opposite nine beds the same.

Then the upper half circle opposite the *Araucarias*, in two halves, has seven oblong beds with three vases and three statues between them. Then beginning at the bottom bed, west end, we have a bed of purple *Petunias* in five rows, and a row of *Flower of the Day*, and then blue *Lobelia*, close planting thus—second bed *Tropaeolum elegans* edged with *Golden Chain* and blue *Lobelia*, a row of each; third bed, six rows of *Calceolaria integrifolia floribunda*, or *C. "floribunda,"* as they say, edged with *Flower of the Day* and blue *Lobelia* in two lines; fourth, or middle or key-bed, *Unique Geranium* edged with *Golden Chain* and blue *Lobelia*; fifth bed, to match the colour of third bed, its match from the key-bed, *Triomphe de Hyris Tropaeolum* five rows, *Countess of Warwick* round, and *Lobelia* outside; sixth to match No. 2, five rows of *Crystal Palace Scarlet Geranium*, *Golden Chain*, and blue *Lobelia*, a row of each; and seventh bed, *Shrubland Rose Petunia*, with *Countess of Warwick* round it, and blue *Lobelia* outside. The corresponding seven beds beyond the centre walk same as those, of course. But how my friend, fresh from *Atliol Brose*, could have been puzzled at this simple arrangement is a mystery from beyond the hills.

Now, the chain pattern on each side of the centre is even more simple still. Three rows of *Calceolaria floribunda* run through the centre of all the beds, two rows of *Crystal Palace Scarlet Geranium* on each side of the *Calceolaria*, and the edging all round with the narrow links between and connecting the beds are all in variegated *Alyssum*. Aristocratic enough, and artistic to the last plant of them, sure enough. These two sunk panels and the two end sunk ditto, have circular flower-beds on the lower side, and oblong beds of *Rhododendrons* between, two of each opposite the end panels, and three of each opposite the chains. Let us take the west end, and say a circle bed with *King Rufus* and two rows of *Flower of the Day* round it; the second bed with *Nosegay* or *Fothergillii*, one row of *Flower of the Day* round it, and one row of *Sidonia* outside; the third bed is *Tropaeolum elegans* edged with blue *Lobelia*; the fourth with *Calceolaria amplexicaulis* edged with *Brilliant Geranium*; and the fifth and last on that side of the centre of the terrace a greenhouse *Geranium* of some *floribunda* cast, too floristical for a telling sort in a bed. Bedding *Geraniums* are for bedding out, florists' kinds to be exhibited in pots only, and pot luck never comes of trying them the one for the other. Light *Minimum Geranium* round that bed.

The first bed of this run on the east or north side of the centre is with "improved" *Nosegay Geranium*, which is after the crimson *Minimum*, two rows of *Fair Helen* round it, and edged with light *Minimum*, but blush *Minimum* is the better name; the second is with *Calceolaria amplexicaulis* edged with *Brilliant Geranium*; third with *Tropaeolum elegans* edged with blue *Lobelias*. The last two at the farthest end are like the first pair on the west end. *King Rufus* in one, and *Fothergillii Nosegay* in the other, and then the drop-beds on the slopes at both ends of the terrace; there are eight in number at each end, and they seem to drop or hang down from the eight points at the springing of so many arches. The arches are of variegated *Hollies*, and there is one row of *Geraniums* along the arches and going the drop-beds. *Baron Hugel* or *Bishopstow Scarlet* are the best kinds for that one row, because they have the best marked horseshoe leaf, and so contrast, that way, with the variegated *Holly*; but this season these kinds could not be had, or if they could, other places were so much in want of them that they could not be spared, and *Mangles* Variegated was put instead of them. *Mangles* and the variegated *Hollies* give the same effect as the variegated *Alyssum* with *Flower of the Day*, but not quite so bad. These two being both hard in their looks, so to speak, while *Flower of the Day* is soft, as it were, and making a worse sin for the eye with the *Alyssum*.

The drop-beds themselves are as follows:—*Calceolaria floribunda* in the centre, *Crystal Palace Scarlet Geranium* round it, and the festooned line of *Mangles* from the arches coming round the edges of all the drop-beds, which finishes my day's

work. But in the private propagating-ground, to which I have a ticket of leave, I saw a quantity of fine plants of the very original variegated Nosegay of which Miller wrote as the first variegated sport from seeds in England of that race; and I would be bound they are intended for a shot-silk bed at last, now that they have such a stock of *Verbena venosa* to shot-silk with that sort, though not the kind exactly which made the original, but a better kind. It is the greatest weed among all *Geraniums*, and yet will make one of the best-telling beds in a garden, when shot-silked with the purple *venosa*, in the hands of good trainers, as those at the Crystal Palace certainly must be, else they would never venture to risk so many beds of *Tropæolum elegans* with such slender edgings as the Golden Chain or the blue *Lobelia*, while I am warning all my country cousins to beware of elegans, and see it does not kill or run over any edging they can venture on; and so it will if they, these cousins, go out a-haymaking but for one week, to say nothing of the harvest and the staff of life, and how it is to be saved.

They are building the broken wing for a grand orangery to be kept at 50° all the winter, and no gas, or dancing and tumbling to be allowed to fluce off their leaves; but they say the frost of last winter did the big Orange trees a world of good by getting off the old leaves then thoroughly poisoned with the gas and night work; at all events they look now in their renewed leaves very different and very much better than ever they did in June, on this side of the channel.

FUCHSIAS.—The beds of Fuchsias on the Rose Mount. At the Crystal Palace is a new experiment to find out if any, or how many, kinds of the new style of Fuchsias are suitable or not adapted to the bedding system. Sir Colin Campbell is the one under experiment. Of course *globosa* will make a good edging to any kind of Fuchsia, and so would *microphylla*. *Heliotropium corymbosum* was there last year, and in the hot summer of 1859, and is now proved to be the best bedder of all the *Heliotropes* that have been tried there. The common *Heliotrope* takes a long while to start after planting out, and once it is off it is a wilding. But about the Fuchsias, as long as I think of it allow me to introduce you and two or three friends to Smith's Mammoth; you will see it advertised in our last Number as having had a first-class certificate from the Floral Committee, but I assure you there is no other Fuchsia like it. It is a Mammoth of a double Fuchsia, and hangs just like the bell on the neck of a ram, down the country, to let the ewe with the crooked horn know which way to turn, as this bell of a double Fuchsia will let a gardener know how to take a prize.

D. BEATON.

GROWING CHRYSANTHEMUMS FOR CUT FLOWERS.

I HAVE been growing my Chrysanthemums as Mr. Beaton advised last December. I let them grow, and did not stop them until their first bud appeared, then took it out. I have mine planted three and four in eleven-inch pots. They have grown up full a yard in height, and are very healthy, strong plants. I have noticed many have thrown out a small blind bud from its centre. After this the laterals have started and are now from 4 inches to 9 inches in length. They are exposed to the sun all the day till four o'clock. Should they be in a more sheltered place? Also, am I to pinch out the next bud of these lateral shoots? The only fear I have is, that they will show bloom too early.—A SUBSCRIBER.

[There is not the smallest danger of your Chrysanthemums coming into bloom one week before the usual time. All our art failed to get them in before their usual time; but some have been kept back all the winter and till late in the spring. You ought to have Mr. Holmes' catalogue, which tells the proper bud to bloom all kinds from. You are now in the second bud with all those that have the laterals and the "small blind bud," which is the first bud. Thin the laterals well now—three laterals will give very large blooms. But see in the same report what Mr. Bird has been doing, and follow him and beat him too—that is, if you can.]

PRESENTATION.—On Tuesday evening, the 25th of June, upwards of sixty of the gardeners employed under Mr. Eyles in the Gardens of the Royal Horticultural Society at Kensington, sat down to an excellent dinner at the Camden Arms Tavern, provided gratuitously by Mr. Lawrence, the proprietor of the

establishment. The occasion was to celebrate the presentation of a handsome silver snuff-box to Mr. William Dines, general Foreman of the Gardens under Mr. Eyles. The ceremony was performed by Mr. John Gribben, in a neat and complimentary speech, and Mr. Dines thanked his friends in a feeling and appropriate manner. The inscription on the box is as follows:—

PRESENTED TO
MR. WM. DINES,
BY THE GARDENERS EMPLOYED
BY THE ROYAL HORTICULTURAL SOCIETY,
SOUTH KENSINGTON,
TO MARK THEIR ESTEEM FOR HIS UNIFORM
CIVILITY AS FOREMAN.
JUNE 25TH, 1861.

CULTURE OF THE GRAPE VINE.

(Continued from page 236.)

CULTURE IN THE VINERY.

THERE is no doubt that the management of the Vine is the most successful and most certain in houses built expressly for the purpose, and kept especially in heat, air-giving, and general culture for the production of that fine and delicious wholesome fruit. To grow it to the greatest perfection and to furnish good fruit all the year round, three houses are necessary, one for the earliest crop, another for the summer crop, and the third for the autumn and winter crop. In large establishments this division is still further carried out, by having houses planted with some kinds that require peculiar treatment—as for instance, one house is filled entirely with the Muscat of Alexandria Grape, or allied kinds, because such sorts require a higher and drier temperature when ripening than others; and then, again, another house is planted entirely with the West's St. Peter's Grape, and similar sorts to ripen in the darker months of the year. A fine example of the latter mode was a few years ago at Chatsworth, and may, probably, be there yet. The finest example of a Muscat-house that I have seen is at Penryn Castle, near Bangor, in North Wales.

Both these examples are in lean-to houses, but there need be no dispute that the best form for a vinery is the span-roof, provided it is properly ventilated at the apex to let out the superabundant heat that accumulates there. If the house is intended to be forced early, I should then have the border entirely inside; but for a general crop, then in order to give the Vines a large pasture I should recommend the walls to be built on arches, and have additional borders on both sides. The aspect of such a vinery should be east and west. It will then have the benefit of sunlight from the morning to the evening. These borders would be improved and made more perfect if chambered and heated as described before. In other respects as to the compost, draining and sheltering, I have nothing to add to my former account of those matters.

For the early vinery I have stated that the border should be entirely inside, because then the root action goes on simultaneously with the top action—a very important point, for how can the sap flow freely from roots in a cold soil exposed to all the severity of winter? It, however, must be borne in mind, that a border covered with glass has no chance of receiving moisture from rains: hence that necessary element water must be supplied from the watering-pot and right freely, so that it may be wet quite through. Just at the time when the fruit is swelling two or three waterings with liquid manure may be applied with advantage, more especially after the borders have been occupied with the Vines for three or more years. The mode by which I made manure water for this purpose was as follows:—I had large tubs kept for the purpose. I procured all the dung I could get from the poultry-yard and pigeon-cote, and if that was not sufficient I added to it a quantity of cowdung, collected clear of straw. To this was added a lot of soot and a small quantity of quicklime. With these enriching manures I filled my tubs about a third-part full, and then filled up with hot water, stirring the whole well together right down to the bottom of the tub. As soon as it cooled down to a milkwarm temperature and the heavier particles had settled to the bottom, it was applied to the borders, when moderately dry, in that state. If it was judged to be too strong, then that strength was reduced by adding tepid water sufficient for the purpose. The lime and the soot effectually killed any living insects that might be in the dung, and the hot water destroyed their eggs. Should there be any worms in the border or pots, this kind of compound liquid

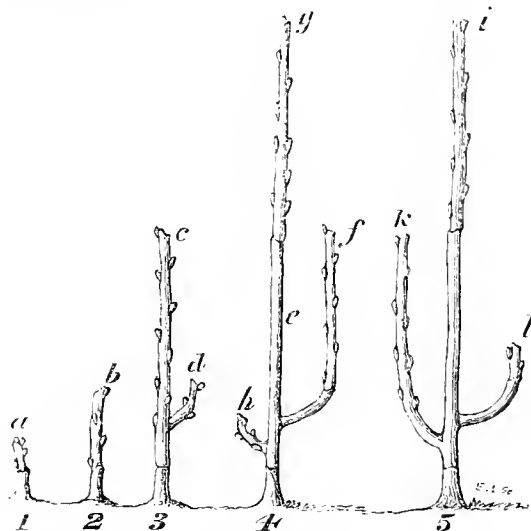
manure killed them also. The borders inside the summer and autumn vineries should, in the growing season, have a plentiful supply of water sufficient to thoroughly moisten the soil.

As the fruit and wood ripen the watering should be more moderate, and be finally relinquished when maturity is accomplished. Then every part of the vineries should be kept as dry as possible, both to prevent the Grapes from moulding and the leaves from decaying prematurely.

Heating.—Very good Grapes may be, and indeed are, grown where the heat is furnished by common flues; but there is always danger of flues bursting by internal explosions of confined air, or any other cause: hence it is now universally allowed, that there is no system of heating so safe and easy to manage as that of circulating hot water in iron pipes connected with a sufficiently large boiler and capacious fireplace. And let me in this place warn the hothouse against false economy in those two important points—namely, the size of the boiler and the extent of piping. There can hardly be too much of the latter, for it is easy to manage the fire so as to heat the water moderately; but it is not so easy to heat a large body of air to the right temperature, if the boiler is small and the pipes short in extent of size and number. Three or four pipes will give out more heat from a given quantity of fuel than one or two filled with water nearly to boiling-heat, besides being fifty times safer and easier to manage: therefore, whatever you do, have plenty of piping and a boiler large enough to heat the water moderately.

Another mistake in regard to the situation of the pipes—they are too often placed close, or nearly close, to the soil of the border. Though heat ascends, it also radiates, and that radiates downwards dries up and parches the soil of which the border is made. That is an evil which may be easily avoided by placing the pipes upon stands a foot or more, as may be convenient, from the ground. By so arranging the hot-water pipes, the drying of the soil will be prevented.

PRUNING AND TRAINING.—In the vinery where everything is subordinate to the Grape, various modes of pruning and training may be adopted. In my opinion there are only two modes that are really useful. The first is the spur system, which I have already described in treating of the Vine in the greenhouse; and I must say, after nearly half a century's practice I consider this mode the best, because by it no strength of the Vine is lost, and besides that its simplicity, regularity, and neatness, are great recommendations.



The next best is that called the long-shoot system. I believe it was first adopted by my late friend, Mr. Mearns, then gardener at Shobden Court, in Herefordshire, and was described by him in the fourth volume, page 246, of the "Horticultural Transactions." The best way to describe this scientific mode is to refer the reader to the figures above. Fig. 1 shows a young Vine just planted and cut down to the bottom of the rafter at *a*, and one shoot only allowed to grow and be trained to the rafter. During that summer the Vine is allowed to grow if it will to the top of the rafter and is then stopped. The laterals are also

stopped at the first joint, and kept stopped from time to time as they break forth again. At the end of autumn, when the leaves have all fallen and the plant is at rest, it is cut down to three or four eyes, as shown in *fig. 2* at *b*. The second year two shoots are left to grow, and the strongest is stopped when it has reached a foot or two beyond the middle of the rafter. The weaker is stopped also, but nearer to the place it started from. In the autumn following these two shoots are pruned as shown at *fig. 3*, *c* and *d*. The leading and stronger shoot, *c*, is allowed that year to bear a crop of fruit, and the weaker one, *d*, is allowed to grow up by the side of *c*, and is stopped at a foot or so beyond it. The reader will perceive that the shoot *c* is bearing fruit that year, and the spur *d* is producing a shoot to bear fruit in its place the year after. The shoot from the top of *c* is allowed to run up to the top of the rafter and is there stopped. The laterals on the upper part of *c* are stopped at the first joint, as also are those on the shoot *d*. The winter following the Vine is pruned as shown in *fig. 4*. The shoot made from the bearing-shoot *e* is cut off within a foot of the top of the rafter at *g*, and shoot *f* from the spur *d* is pruned to about the end of the shoot that has borne fruit. All the spurs on *e* are cut clean off close to the main stem. Each Vine, it is evident, now has fruit-bearing shoots that will furnish bunches from the bottom to the top of each rafter. The branch *f* may be trained close to the barren stem *e*, and the shoot that will spring from its top may be a little diverged outwards, so as not to interfere with the fruit-bearing shoot *g*. A spur at *h* is left to produce a young shoot the next summer to replace *f*. In the autumn of that year the centre shoot *g* is cut out entirely, and the one *f* is brought into its place. *Fig. 5* shows this—the Vine is pruned at *i*, which has reached the top of the roof, and at *k*, the shoot that grew from *h* (*fig. 4*), from *l* a young shoot will spring to supply the place of *f* (*fig. 4*). This completes the circle, and the same method must be followed year after year, always taking care that the rafters are furnished from the bottom with one shoot bearing fruit half way up, and another fruitful branch from the centre of the rafter to bear fruit to the top the same year, leaving a spur at the bottom to produce a shoot to replace the whole eventually. This system is very beautiful in practice though tedious to describe. By it large bunches of excellent fruit may be produced, as, indeed, I have proved, both by my own practice and that of others that I have visited.

The vineries that are devoted entirely to the Muscat of Alexandria, Canon Hall, and allied kinds, require to be kept very dry when ripe or nearly so, in order to produce that high, rich amber colour for which they are so justly admired: hence there should not be a single plant allowed in them, for the necessary watering of plants sends up a moisture that is injurious to these Grapes. The best plan is either to cover the entire internal floor with flags; or, if that is inconvenient, let the floor, by which I not only mean the walks but the borders also, be covered with clean dry gravel.

By paying attention to these points, and keeping the Vines clear of insects and mildew, the cultivator may produce as good Grapes as ever were grown.—T. APPLEBY.

(To be continued.)

CROSS-BRED DIANTHUS SEEDLINGS.

HEATED OPEN BORDER.

I HAVE now in flower many seedlings from *Dianthus Hedewigii* crossed by Sweet William. They have the appearance of dwarf, stout Indian Pinks, but the blossom is exactly like that of the male parent doubled or rather trebled in size. They vary much in tint and quality. One alone of the lot has turned up a trump, if I may use the expression. In colour it equals if not surpasses the best *Hedewigii* I ever saw, and is the nearest approach to a perfect circular flower I have ever met with. The limb is surrounded with the regularly-fringed edge of the Sweet William parent. I will send you a cutting soon. [Many thanks, a batch of the same cross was exhibited before the Floral Committee, but the flowers were too dark and dull.]

I have a heated border in the open air in full operation. The plants have only been out about three weeks, but already show unmistakeable signs of doing something before long. One portion is reserved for Cape and other bulbs exclusively, and will have arrangements for seasonal treatment. The only striking observable effect at present is a most important one—to wit, that the

plants went on growing without receiving any check from planting them out. This will add, at least, several weeks to their duration of growth, and will, I hope, enable late-blooming sorts to flower before the frosts come.

The experiments will not be confined to stove plants, as I wish to note the behaviour of certain hardier plants under the circumstances—such as the ripening of seed, &c.

I am trying once more my hand on the Grape Vine. I have now a healthy bunch of eight berries (Black Hamburg crossed with the Canon Hall Muscat). Every anther was abstracted two days before their period of expansion, and the whole enclosed in a bag of muslin, the pores of which were closed with size. I have great confidence in the reality of the cross. I am just now following up a course of most curious, and, in part, new observations in cross-breeding; but as it is hardly satisfactory to any party concerned to publish unfinished investigations, I have not as yet communicated with any one on the matter.—R. T. C.

[Let us know the result.—EDS. J. of H.]

CRYSTAL PALACE ROSE SHOW.—JULY 6.

WHATEVER anticipations may have been indulged in as to the character of this Show were amply borne out by the result. On the one hand, it was believed that as two previous exhibitions of the National Rose Show had been held there, the announcement that they would hereafter take place in connection with the Royal Horticultural Society at Kensington Gore would not deter exhibitors from contending for the very liberal prize offered by the Crystal Palace Company, and the entries were more numerous than on any former occasion; while, on the other hand, it was believed that, owing to the character of the season, and the immense losses amongst Rose-growers, there must be a deficiency in character; and this, too, was abundantly fulfilled. I never recollect seeing such a thorough metamorphosis as some of the flowers exhibited. Such well-known flowers as Général Jacqueminot and Paul Ricaut would have been unrecognisable but for the names attached; one bloom of the former was quite as much mottled as any Triomphe d'Amiens could be. Baronne Prevost was shown washy and ill-shaped. Duchess of Sutherland as bad as any monthly China; and, generally speaking, the blooms were far short of the standard—I say generally, for some of them were truly grand. The Sénateurs Vaisse and Généraux Jacqueminots in both Mr. Keynes' and Mr. Cranston's stands were magnificent flowers; and here and there one came across flowers of surpassing excellence, and probably, considering the season, many will be ready to say it was far better than could have been anticipated.

The new Roses were, as usual, the subjects of special interest; and again Mr. Standish, of Bagshot, and Messrs. Fraser, of Lea Bridge, ran very hard for the first prize: the tables this year were, however, turned, the former gentleman taking first, with the following, some of which, marked thus *, are still in his hands to be let out this autumn:—Madame Furtado (ex. ex.), Abdel Kader, John Standish, Princesse Clothilde, *Gregoire Bordillon (a rich, lovely crimson), *Marguerite Appert (blush white—like Caroline de Sansal in colour, but not in shape, it being a flatter Ros.), André Desportes, Madam Standish, John Waterer, Eugène Appert, Reine des Violettes (rubbish!), Mademoiselle Bonnaire, *Comte de Falloux, *Reynolds Hole (a beautiful lively pink, very much the shade of colour of Catherine Guillot, B.; but very vigorous, holding its head well up), Louis XIV. (ex. ex.), and Ophelia (Tea). In Messrs. Fraser's were Mademoiselle Bonnaire, Madame Furtado, Prairie de Terre Noire, Eugène Appert, Triomphe de Lyon, General Washington, Barlow, Victor Verdier, Louis XIV., Vainqueur de Solferino, Belle de Bourg la Reine, Parmentier and Reine des Violettes.

I was glad to find (I suppose we all are when we are right) that my judgment given in the earlier part of the season was not far out. Of the Roses of 1860, I think we shall find that Sénateur Vaisse, Victor Verdier, Madame Charles Crapet, Madame Boll, Louis XIV., and Mlle. Bonnaire the gems. And of 1861, Madame Furtado, General Washington, and Comte de Falloux will hold a high place; while Reine des Violettes, lauded by some as the best Rose of the season, will find its appropriate place on the dunghill, or a stock to bud on. More of these by-and-by.

Amongst Growers. In class 1 (ninety-six varieties), the first prize was taken by Mr. J. Mitchell, of Pitdown; the second by Mr. J. Keynes—the hon. member for Salisbury! the third by

Mr. W. Paul; the 4th by Messrs. Paul & Son; and the 5th by Mr. Edward Hollamby, of Tunbridge Wells. Ninety-six names is an awful task, and, generally speaking, the best flowers are to be found in the smaller classes.

In class 2 (forty-eight varieties), Mr. Cranston was first; Mr. Keynes second; Mr. E. Tilley, of Bath, third; Mr. E. Hollamby fourth; Mr. B. F. Cant, of Colchester, fifth. Mr. Cranston's lot comprised Sénateur Vaisse (a splendid truss—in fact, Général Jacqueminot with twice as much stuff in it), Madame Charles Crapet (a beauteous light crimson Rose, large petal, and fine shape), Général Jacqueminot, Eugène Appert, Anna Alexieff, Souvenir de la Malmaison, (B.), Triomphe de Lyon, Gloire de Dijon, Mlle. Marie Dauvesse, Louis XIV. (a splendid Rose), Virginal (beautiful pinky white), Souvenir de la Reine de l'Angleterre, Caroline de Sansal, Alexandrine Bachmetoff, Evêque de Nîmes (very fine), Victor Verdier, Princesse Mathilde, La Sylphide (Tea), Lælia, Baronne Hallez (very fine), François Arago (very dark), Madame Therese Appert, Dr. Marx, Louis Odier, l'Enfant de Mont Carmel, Odeur Vital, Manory, Madame Furtado, Eugène Appert (ex.), Alphonse Karr, Madame Vidot, Lord Raglan, Louis Chaix (ex. ex.), Comtesse de Chabillant. All those not otherwise marked are Hybrid Perpetuals.

In class 3 (twenty-four varieties), Mr. Keynes was first; Mr. Cranston second, Mr. Laing, of Twickenham, third, Mr. J. Cattell, of Westerham, fourth; and Mr. Edward Shenton fifth. Mr. Keynes' comprised Gloire de Vitry, Triomphe des Rennes (a grand bloom), Madame Vigeron, Madame Vidot, Léon des Combats, Comtesse de Chabillant, Lord Raglan, Pius IX., Comte de Nanteuil, Général Jacqueminot, Madam Rivers, Victor Verdier, Anna de Diesbach, Prince Léon, François Premier, La Ville de St. Denis, Jules Margottin, Paul Duprez, Sénateur Vaisse (a magnificent bloom), Due d'Orléans, and Pauline Lanzezin.

In class 4 (twelve varieties), Mr. Keynes again was first; Mr. Cant second, Mr. Alfred Gosling (?) third, Mr. John Cattell fourth, Mr. Edward Shenton fifth. Mr. Keynes' flowers were Madame Hector Jacquin, Paul Duprez, Madame Vidot, La Ville de St. Denis, Souvenir de la Malmaison, Madame Vigeron (a fine Rose), Gloire de Vitry, Général Jacqueminot, Gloire de Dijon, Léon des Combats, Comte de Nanteuil. Mr. Cant's flowers were Charles Lawson, Madam Rivers, Pauline Lanzezin, Gloire de Mossenses, Triomphe de Paris, Général Jacqueminot, Comtesse de Chabillant, Baronne Hallez, Colonel de Rougemont, Ohi, and Mathurin Regnier.

In class 5 (twenty-four varieties, three trusses of each), Mr. Keynes was again first, Mr. Laing second, Messrs. Fraser third, Mr. James Mitchell fourth, and Mr. John Cattell fifth. Mr. Keynes' flowers were Wm. Griffiths, Léon des Combats, Souvenir de Leveson Gower, Virginal, Victor Verdier, Général Castella, Pauline Lanzezin, Mathurin Regnier, Gloire de Dijon, Comte de Nanteuil, François Premier, Madame Vidot, Madam Rivers, Evêque de Nîmes, Général Jacqueminot, and Madame Mielze.

Amongst Amateurs. In class 6 (thirty-six varieties), Mr. Hedge, of Colchester, was first; Mr. Keel, second; Mr. Hollingworth, third; Mr. Evans, fourth; Mr. Thorneycroft, fifth; and extra, Mr. Rowland. Mr. Hedge's flowers were Géant des Batailles, La Fontaine, Auguste Mie, Shakspeare, Wm. Griffiths, Jacques Lafette, Virginal, Duchess of Buccleugh, Gloire de Mossenses, Prince Regent, Duchess of Sutherland, La Ville de St. Denis, Reine Victoria, Lord Raglan, Madame Knorr, Madame Boll, Acidale, Coup d'Hébé, Bizarre Martré, Général Jacqueminot, Eugène Desgaches, Souvenir de la Reine de l'Angleterre, Jumo, Charles Lawson, Odeur Vital, Letitia, Caroline de Sansal, Princesse Hélène, Leo the Tenth, Paul Ricaut, and Cynthia.

In class 7, Mr. Hedge first, Mr. W. Corp second, Mr. Thurland third, Mr. Moffatt fourth, Mr. W. Mercer fifth, and Messrs. Walker, Evans, and Cooper, extra.

In Class 8 (eighteen varieties), Mr. John Dennis first, Mr. Moffatt and Mr. Edge equal second, Mr. Evans third, Mr. Moore fourth, and Mr. Treen fifth. Mr. Dennis' stand consisted of Madame de Cambacères, Melaine Oge, Coup d'Hébé, Comtesse de Chabillant, William Griffiths, William Jesse, Alexandrine Bachmetoff, Anna Alexieff, Madame Hector Jacquin, Madame Knorr, Auguste Mie, Madame Portenere, Gloire de Dijon, Souvenir de la Reine de l'Angleterre, Madam Rivers.

In class 9 (twelve varieties), Mr. Wm. Corp, of Salisbury, was first; Mr. J. Varney second, Rev. Mr. Child third, Mr. Voekins fourth, and Mr. Hedge fifth.

In Pot Roses, a nice collection was shown by Mr. Turner, of Slough, but, as a rule, it is much too late for them.

Amongst Miscellaneous Objects were some fine Pinks, Carnations, and Picotees, from Mr. Turner, of Slough; and some Pansies and Pinks from Mr. Bragg of the same place. Ferns and other plants belonging to the Company were scattered up and down, and many admirers crowded round the tables during the day.—D., *Deal*.

GROWERS FOR SALE.

NINETY-SIX VARIETIES (One Truss of each).—First, J. Mitchell, Pilt-down Nurseries, Maresfield, Sussex. Second, J. Keynes, Salisbury. Third, W. Paul, Cheshunt Nurseries, Waltham Cross. Fourth, Messrs. Paul and Son, Old Cheshunt Nurseries, Cheshunt. Fifth, E. Hollamby, Rose Nurseries, Tunbridge Wells.

FORTY-EIGHT VARIETIES (One Truss of each).—First, J. Cranston, King's Acre Nurseries, near Hereford. Second, J. Keynes, Salisbury. Third, E. Tiley, 14, Abbey Churchyard, Bath. Fourth, E. Hollamby, Rose Nurseries, Tunbridge Wells. Fifth, B. Cant, Colchester.

TWENTY-FOUR VARIETIES (One Truss of each).—First, J. Keynes, Salisbury. Second, J. Cranston, King's Acre Nurseries, near Hereford. Third, R. Laing, the Nurseries, Twickenham. Fourth, J. Cattell, Westerham, Kent. Fifth, B. Cant, Colchester.

TWELVE VARIETIES (One Truss of each).—First, J. Keynes, Salisbury. Second, B. Cant, Colchester. Third, A. Gosling, Tower Nursery, Heathfield, Sussex. Fourth, J. Cattell, Westerham, Kent. Fifth, E. Shenton, Hendon Park, Nurseries, Hendon.

TWENTY-FOUR VARIETIES (Three Trusses of each).—First, J. Keynes, Salisbury. Second, R. Laing, the Nurseries, Twickenham. Third, Messrs. J. & J. Fraser, Lea Bridge Road Nurseries, Leyton. Fourth, J. Mitchell, Pilt-down Nurseries, Maresfield, Sussex. Fifth, J. Cattell, Westerham, Kent.

AMATEURS.

THIRTY-SIX VARIETIES (One Truss of each).—First, J. T. Hedge, Reed Hall, Colchester. Second, H. Keel, gardener to A. Lawrance, Esq., Bath. Third, J. Hollingworth, Maidstone. Fourth, S. Evans, gardener to C. N. Newdegate, Esq., M.P., Arbury, Nuneaton. Fifth, H. Thorneycroft, Floore, near Weedon. Extra prize, A. Rowland, Rosenthal, Lewisham.

TWENTY-FOUR VARIETIES (One Truss of each).—First, J. T. Hedge, Reed Hall, Colchester. Second, W. Corp, Milford, Salisbury. Third, W. F. Thurland, New College, Oxford. Fourth, A. Moffatt, Easton Lodge, Dunmow. Fifth, W. Mercer, Grove House, Hunton, near Staplehurst. Extra prizes, T. Walker, 24, Merton Street, Oxford; S. Evans, gardener to C. N. Newdegate, Esq., M.P., Arbury, Nuneaton; Dr. Cooper, Slough.

THIRTEEN VARIETIES (One Truss of each).—First, J. Dennis, gardener to H. S. Hayward, Esq., Follington, Hurst Green Sussex. Second, J. T. Hedge, Reed Hall, Colchester; A. Moffatt, Easton Lodge, Dunmow. (Equal.) Third, S. Evans, gardener to C. N. Newdegate, Esq., M.P., Arbury, Nuneaton. Fourth, E. Moore, Horsell, Surrey. Fifth, W. H. Treven, Rugby.

TWELVE VARIETIES (One Truss of each).—First, W. Corp, Milford, Salisbury. Second, T. Varney, gardener to W. Smith, Esq., Upper Norwood. Third, Rev. — Child, Little Easton, Dunmow, Essex. Fourth, W. Vockins, gardener to J. T. Noakes, Esq., Brockley Hall, Lewisham. Fifth, J. T. Hedge, Reed Hall, Colchester.

OPEN TO ALL.

New Roses of 1860 and 1861.

FOR THE BEST COLLECTION (One Truss of each variety).—First, J. Standish, Royal Nursery, Bagshot. Second, Fraser & Son, Lea Bridge-road Nurseries, Leyton. Third, Paul & Son, Old Cheshunt Nurseries, Cheshunt.

Roses in Pots.

SIX ROSES, SIX VARIETIES (In Pots not exceeding 13 inches in diameter).—First and second withheld. Third, C. Turner, the Royal Nurseries, Slough.

FOR THE BEST COLLECTION OF ROSES (In Pots not exceeding 8 inches in diameter).—First, C. Turner, the Royal Nurseries, Slough.

IN-DOOR PLANTS.*

A GARDEN was the first residence of man, and gardening his first occupation: He drew his first breath, and found his first pleasures in the Garden of Eden, and those who now delight in the flowers and fruits which were its produce show that they are not altogether decayed from the pure tastes which characterised the first estate of our nature. It is a gratifying characteristic of our countrymen, and we glory in the fact that, from the Queen who adorns our nation's throne, to the poorest tenant of the meanest attic in St. Giles, a love of flowers and of their cultivation prevails. We glory in the fact because it demonstrates that a love of the beautiful and the pure pervades our people—is inherent in them; and where that love predominates, though there may be—nay, must be—many deviations, much error, much vice, and much sin, for these are incidents of our fallen nature, yet that love, like the bias of the bowler's ball, has a constant tendency to wind round to "the mark of our high calling."

We hail, therefore, the little volume before us, because it is a good and faithful help to all who have that relic of Eden in them—the love of flowers—yet who have not the knowledge how to cultivate them.

"My aim in writing this little book," says the authoress, "has been to give such plain and practical directions for the cultivation of in-door plants as may enable any lady to choose and

* *In-door Plants, and how to Grow them for the Drawing-room, Balcony, and Greenhouse, containing Clear Instructions by which Ladies may raise, at a small expense, a constant Supply of Flowers.* By E. A. Maling. London: Smith, Elder, & Co.

grow abundant flowers to adorn her house; and I am the more confident of the sufficiency of the rules here laid down, because they have been tested by myself during some years' practice in rearing and keeping plants." Now, we happen to know that this is strictly true. An acquaintance with the writer is a pleasure and a benefit to us—for defective health imprisons her to her room; and it is a benefit to us, because it is an example to know, how, passing aside all useless regret, she has admirably succeeded in adorning her place of imprisonment. Picciola had but one little plant in his cell, but in Miss Maling's are many of the most beautiful, all nursed with untiring attention, and all demonstrating that that attention is guided by skill. We remember reading long since, "Travels Round my Chamber," and no unfitting companion to those essays would be a series by Miss Maling, "Visits to my Room Plants." Had we permission we would give a sketch, historical and biographical, of the tenants of that room, the tenants of its aviary, and its plant-cases, nor would we drop our pen until we had said somewhat about the presider over their destinies.

It must at present suffice for us to observe, that those plants are unmistakable evidence of a knowledge of their cultivation judiciously applied. In the volume before us that knowledge is recorded. "I have described," says the authoress, "not only what should be done, but also how to do it, knowing that the simplest points of plant culture are often the worst attended to, merely because it is supposed that every one knows how to do that." This is no more than the truth, and we recommend to all ladies fond of flower-culture, "In-door-plants and How to Grow Them," as one of the safest and most explicit of guides.

NEW AND RARE PLANTS.

CALADIUM BICOLOR, var. *CHANTINI* (*Chantini's Two-coloured Caladium*).

Nat. Ord., *ARACEÆ*. *Linn.*, *Monocécia Monandria*. This is really a three-coloured-leaved *Caladium*, for the green disk of the leaves is spotted with white, and the veins even on the upper surface deeply crimsoned. "Among the many splendid kinds of variegated-leaved plants, not one surpasses this in effectiveness."—(*Botanical Magazine*, t. 5255.)

BEGONIA GLANDULOSA (*Glandular-leaved Begonia*).

Nat. Ord., *Begoniaceæ*. *Linn.*, *Monocécia Polyandria*. It has also been called *B. nigro-venia*, and is probably identical with *B. multinervia*. Flowers small and pale green; leaves with black-coloured veins on the upper surface. Native of Veraquas. —(*Ibid.*, t. 5256.)

RESTREPIA LANSBERGII (*Lansberg's Restrepia*).

Nat. Ord., *Orchidaceæ*. *Linn.*, *Gynandria Monandria*. A beautiful small Orchid, native of Guatemala. Flowers greenish-yellow, spotted with brown. "Lateral sepals and petals have clavate, or club-shaped, tips, resembling the antennæ of some insects."—(*Ibid.*, t. 5257.)

LINDENIA RIVALIS (*Riverside Lindenia*).

Nat. Ord., *Rubiaceæ*. *Linn.*, *Pentandria Monogynia*. Native of river sides in South Mexico and Guatemala. It is a handsome evergreen shrub. Flowers creamy white, with long pinkish tubes, blooming in May in the Kew stoves. —(*Ibid.*, t. 5258.)

LEPANTHES CALODICTYON (*Net-leaved Lepanthes*).

Nat. Ord., *Orchidaceæ*. *Linn.*, *Gynandria Monandria*. A very singular and beautiful little plant. Leaves pale green, with broad, brown, net-like veins; stem passing up through trumpet-shaped scales; flowers yellow and crimson. —(*Ibid.*, t. 5259.)

MOSCATELLO MELON—MELONS OUT OF DOORS.

CAN the author of the article on Melons, in Mr. Dickens' "All the Year Round," be induced to tell us where to get the seed of the variety he recommends (Moscatello)? He says it was introduced into France from Italy. And will you further oblige me by saying if you think a system of out-door cultivation, with protection, for the centres of plants can be adopted in this country? Such is the plan the writer recommends for growing a sort which he esteems one of the best in cultivation; and he certainly seems to be speaking of growing it in England.—H. H.

[We should think that if the editor of "All the Year Round"

was written to, an answer would be obtained. We, ourselves, do not know the Moscatello Melon; but after having in our day grown myriads of kinds of Melons, we cannot say that we could recommend any one sort so far above any other as some people do, provided every one gets the kind he likes best; for even in some places the finest Scarlet-fleshed would not be looked at, and in others the juicy Green-fleshed and White-fleshed would be tahooded. A Melon this season may beat everything put against it, and the seeds from that Melon produce inferior fruit next year; in fact, flavour depends more on management than on kinds. Without the flavour the Melon is just about as good as a Gourd, and little better. We have tried many sorts against a wall, under

glass sashes merely, and with the centre of the plants protected by a hand-light as the correspondent proposes, and we have been successful, and unsuccessful, according to the season. We should expect Melons by either of these modes, if all our summer was like the hot days we have had this June. With a season like the last, we would expect to get little better than green fruit. In a fine season the hardier Green-fleshed and Cantaloup Melons will do by the mode proposed; in a cold, wet season they will do little good. This is our impression from the experience of the past, and with Melons, too, most likely, as great marvels for hardiness as the Moscatello may be; but, we own, we know nothing of it, and may, therefore, be mistaken.]

NEW PLANTS FROM JAPAN.

THUIOPSIS DOLOBRATA.

AMONG the new plants that have been received from Japan there are few that will exceed in beauty and interest *Thuiopsis dolobrata*, of which we furnish a representation drawn by Mr. Fitch from specimens sent home by Mr. John G. Veitch. Attaining as it does the dimensions of a lofty timber tree, and being now proved perfectly hardy in this country, it will introduce a new feature into the English landscape. It is of a pyramidal habit of growth, with horizontally spreading branches, which are drooping at the points, and perfectly evergreen.

It grows in the mountains of the island of Nippon, and particularly in the chain of mountains called Hakone, where it is found on the moist slopes of the hills. Its wood is very valuable for building purposes. The Japanese cultivate it in their gardens as an ornamental plant, and form dwarf trees of it from 3 feet to 6 feet high, which, to preserve of these dimensions, Siebold says, are propagated by cuttings. There is a variety with smaller leaves called by the Japanese *Nezu*.

A beautiful variegated variety of this noble tree has just been received by Mr. Standish, of Bagshot, from Mr. Fortune among a large collection of other living plants sent home by that gentleman, and which will be the most magnificent variegated tree in cultivation.

EFFECTS OF DIFFERENT KINDS OF POLLEN.

I HOPE that you will grant me a little space to thank some of your correspondents and Mr. Beaton for his interesting information how to test the effects of different kinds of pollen on the divisions of the same stigma of a *Pelargonium*, for my special purpose of ascertaining whether one variety is prepotent over another. I fear that the Scarlet *Pelargoniums* include at least two wild forms, which botanists would rank as distinct species. If Mr. Beaton is at any time writing on these plants, perhaps he would tell us what he knows about the wild parent of the Horseshoe and other Scarlets.

I am very glad that "P." sent a list of his *Pelargoniums* with the central flower regular; for I was not aware how common the case was. Will "P." be so obliging as to observe and report whether any of the regular central flowers set seed—that is, if the kinds specified are such as ever produce seed?

With respect to the fertilisation of Wheat: several years ago I examined the flowers day by day, and came to the same conclusion as that which "H. C. K." expresses so forcibly. Mr. Beaton apparently does not much venerate botanical authorities, but he might easily quote a long list of great names to show that Wheat is always fertilised in the bud; what has misled so many botanists I cannot imagine. But stranger assertions of the same kind may be met with: for instance, that cruciferous plants are generally fertilised before the flower opens! As I am



away from home I write without my notes; but I remember that the Chinese have the singular belief that certain varieties of Wheat are always fertilised in the night-time. Col. Le Couteur, who attended so carefully to the varieties of Wheat, entertains no doubt that the different varieties, when growing near each other, cross. On the other hand, a full account has been published of a large number of varieties, I think 150, which were cultivated close together in some continental garden during several years, and never crossed each other. This account has much perplexed me; and I have sometimes been tempted to doubt whether any eye, however accurate, could have distinguished so many varieties, and that, perhaps, after all the

varieties did cross. Mr. Beaton might advance this case in support of his belief that Wheat is fertilised in the bud.

As Mr. Beaton alludes to some mistake which he has made, might I venture to suggest to him to punish himself by telling sooner than he intended by what means he can produce from pollen of the same flower placed on the stigmas of the same variety two different sets of seedlings? That is a mystery which it is tantalising to wait for.—CHARLES DARWIN, *Down, Bromley, Kent.*

THE PEAR FLY.

(Communicated to the Fruit Committee of the Royal Horticultural Society.)

Dexia nigripes? Walker; *Diptera*, pl. 12, 11.

"I TRUST it will not be uninteresting to the Fruit Committee if I call their attention to the history of a little fly which, without attracting the notice of the gardener, frequently destroys his crops of Pears, and probably Apples also; and if to a knowledge of the economy of the insect I can add a simple method by which its destructive effects may in future be prevented, or at least reduced in extent, I shall not deem the time misspent.

"To Henry Webb, Esq., of Redstone Manor, Reigate, a member of the late Pomological Society, I am indebted for several specimens of Catillac Pears which he sent me on the 25th of June, 1860, in which he had discovered several small maggots, which caused the fruit to fall off even at that early period. I at once placed them in a glass and covered them over, and on opening it in February last I found two flies had been produced, a male and female, which I will endeavour briefly to describe.

"The female is about three-eighths of an inch long, appearing to the naked eye of a pale grey colour, and in general formation like a common house-fly; but under a lens its distinctive characters are at once perceptible. Head semi-orbicular, dingy white, with a black velvety mark in front reaching down to the antennæ, and terminating at the back in form of a crescent; antennæ dark, set with short spines and slightly curved inwards; eyes rich brown, oval, widely separated; thorax ovate, angular at the base, with five remarkable black spots, one on each shoulder and three below, divided by a scarcely perceptible suture; several small black dots between the larger spots, out of which stiff setæ issue, the whole bearing a close resemblance to ermine; scutellum semi-ovate, centre white, with an angular black spot on each side, ending in a point with a stiff seta; abdomen four-jointed, dingy white, with three black spots on each joint, the centre one angular; wings dusky, long oval, with five principal nervures and several transverse, as I have endeavoured to show in the accompanying sketch; legs black. Under a lens this is a very pretty fly, belonging to the family muscidae, of which Mr. Curtis enumerates forty-nine species in British entomology; but in the absence of figures and description I cannot identify it with any of them. It appears, however, to correspond with '*Dexia nigripes*,' figured by Walker, '*Diptera*,' pl. 12, fig. 11, although he describes the thorax as quadrimaculata, yet shows five spots upon it exactly according with my specimen. The male is smaller, of a more common dingy colour and not handsomely spotted. The maggots are very similar to those of the blow-fly but smaller. At what time the eggs were deposited, or in what part, cannot be precisely stated, but most likely when the Pear was in blossom, or very soon afterwards, as I have frequently discovered the larvæ of Lepidoptera in the blossoms of other trees, and bred them until they arrived at the perfect state. I think it would be almost impossible to destroy these mischievous larvæ or the flies at this time; but if every gardener who is made aware of their destructive effects were carefully to collect the fruits which they have caused to fall abortive to the ground, and burn them, the species above described might easily be kept under; and by adopting the same plan throughout the season, many other equally injurious insects might be almost extirpated, and thus tidiness and usefulness would be seen linked hand in hand.—F. J. GRAHAM, *Cranford, April 9, 1861.*"

MELON LEAVES TURNING YELLOW.

WILL you inform me the reason why the leaves of my Melon plants are constantly turning first yellow and then become brown and crisp, and crumble to pieces? I thought at first

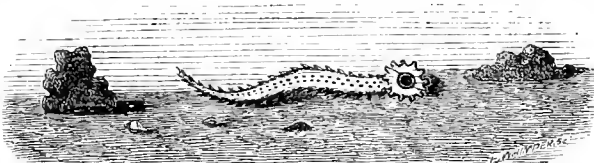
that it was only the leaves which touched the glass of the frame, but I find some of the under leaves affected in the same manner. I shade with tiffany during very hot sunshine, and give plenty of air day and night; watering when the soil appears getting too dry.—H.

[Leaving other causes out of view, such as dryness at the roots when the surface is sufficiently moist, and want of air when the sun suddenly comes out bright, which exposes the plants alternately to a steaming and a kiln-drying influence, such results will frequently occur from sudden alternations in the weather, from dense cloud to bright sunshine. The more the plants are used to regular shading, the more will they suffer when that regular shading is not given. Half an hour's neglect on a sunny morning will produce the result complained about. The watering, &c., may be all right; a few dull days have enervated the plants, and given the roots little to do. A brisk sun suddenly comes, the leaves to live must perspire freely, and as the activity is not equally communicated to the roots, but they are aroused more slowly, the leaves get scorched because they cannot be sooner supplied with moisture to meet the demands of the sun. A slight shading or a skiff from the syringe will often make and keep all right. We are, however, in doubts as to this being the cause in your case from your giving air night and day. Probably the shading has been extra well attended to, and a little neglect, nevertheless, exhibited at a time when the sun was very powerful.]

WHAT TO LOOK FOR ON THE SEASHORE.

(Continued from Vol. XXV., page 92.)

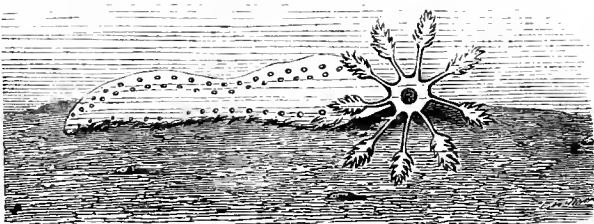
LONG SEA CUCUMBER (*Cucumaria fusiformis*).—This is a



small species, measuring only about an inch in length. It is round, tapers a little towards each extremity; and short as it is, is long in proportion to its thickness. The skin is of a pinkish-white, and covered with feathered papillæ. It has five double alternate rows of suckers; but they are not prominent. It has ten short sub-triangular tentacles, white and feathered.

The Long Sea Cucumber is very sluggish in its temperament, and not given to vary its form much. Many of the Holothuride, indeed, are extremely apathetic; whilst others are, on the contrary, wonderfully active and lively. This species is also dredged in the Shetland seas.

THE GLASSY SEA CUCUMBER (*Cucumaria hyalina*).—This



also a native of the Shetland seas, is a very elegant and delicate creature, being nearly transparent, and of an opal tint. It is fusiform, or spindle-shaped, attenuated at either extremity. It has two closely-set rows of suckers on each avenue. The tentacles are large, stalked, and feathered at the extremities. Its ordinary length is about 2½ inches, although it is stated to reach to a length of 6 inches.

THE TANGLE SEA CUCUMBER (*Cucumaria fucicola*).—This creature, again, is most commonly taken with a dredge off the coast of Shetland, and is generally met with in seven-fathoms water, where it adheres to the stems of marine plants or to rocks. It is a sluggish species, and clings with wonderful tenacity to whatever substance it attaches itself: this is effected,

as usual, by means of its suckers, which are very strong and closely set in five equidistant rows. Its skin is quite smooth, and its body, when at rest with its tentacles expanded, is mostly of an ovate form, and measures about 3 inches in length. The tentacles themselves are short and somewhat club-shaped.

This creature, like the rest of the Sea Cucumbers, chooses a locality where it can escape the light, the action of which seems to be extremely painful to the whole tribe.—W.

(To be continued.)

PLANTS THAT HAVE STOOD DURING LAST WINTER IN GLOUCESTERSHIRE.

YOUR list of plants destroyed by the last winter must now be almost complete, but only one correspondent has sent you a short list of things that have stood the winter. I send you, therefore, a short list of shrubs and herbaceous plants and bulbs that generally are supposed to require care in the winter, but which have survived in south Gloucestershire without any protection, though many of them are more or less injured. If any of your readers can add to the list of herbaceous plants and bulbs, I shall be much obliged.—H. N. E.

Daphne hybrida japonica	Cypella Herberti
Mandevilla suaveolens	Macleania cordata
Melastomus major	Spigelia marylandica
Stauntonia latifolia	Globularia nudicaulis (G. vulgaris killed)
Lassiflora cordata	Clematis tubulosa
Berberis Fortani (B. fascicularis killed)	Tropaeolum speciosum
Scarlet Trumpet Honey-suckle	Plumbago capensis
Lardizabala bibrata	Iris persica
Bignonia capreolata	Francia appendiculata
Aralia spinosa	Tritonia aurea
Acacia julibrissin	Eritræa niflora
Rosa Banksia Fortani	Tropæum hymenoides
Sikkim Rhododendron	Cinno riparium
Oxalis elegans	Lilium lancifolium
Liberia formosa	Cypripedium spectabile and calceolus

The Cypripediums have been in remarkable beauty this year, and I would suggest to your correspondent, "W. X. W.," to grow them in cocoa-nut refuse, he will find it excellent for all the plants named by him in page 231—Cypripedium, Orchises, and Primula farinosa.

REPORT ON THE GARDEN PEAS, GROWN AT CHISWICK DURING 1860.

By ROBERT HOGG, LL.D., F.R.H.S., Secretary to the Fruit Committee.
(Concluded from page 237.)

61. Veitch's Perfection JAMES VEITCH, JUN.

The plant is very robust in its habit, and produces a succulent stem 3 feet high. Foliage dark green, and only slightly blotched. The pods are generally in pairs, of a large size, and from ten to fourteen on a plant. They contain from seven to eight very large Peas, which are closely compressed. The ripe seed is large, green, and wrinkled.

Sown February 19th; bloomed June 13th; slatted June 26th; and ready to gather July 16th.

This is an improved form of Hairs' Dwarf Mammoth, than which it produces much larger pods, and comes into use about six or eight days later. It is decidedly the finest Pea of its class, and one deserving of general cultivation. During the past season it suffered like many other varieties from the unusually cold wet weather, and dropped many of its blooms; but in the previous summer it set every bloom, and matured a profusion of its large well-filled pods.

62. Tall Green Mammoth.....NUTTING & SONS.

SYN: CompetitorCHARLWOOD & CUMMINS.
MonarchNOBLE, COOPER, & BOLTON.
Epps' Monarch.....HURST & M'MULLEN.
Strathmore HeroCARTER & CO.
King of the Marrows.....NOBLE, COOPER & BOLTON.
Waite's King of the Marrows } SUTTON & SONS.

The plant is a strong and vigorous grower, with a thick succulent stem 6 feet to 8 feet high, and branched. Foliage dark green and blotched. The pods are produced in pairs, and are from twelve to sixteen on a plant. Ripe seed large, green, and wrinkled.

Sown February 19th; bloomed June 13th; slatted July 1st; and ready to gather July 20th.

63. Knight's Dwarf Green..NOBLE, COOPER, & BOLTON.

Plant a free and healthy grower, with a branching stem 3 feet high, and very dark green blotched foliage. The pods are produced generally in pairs, and are from ten to twelve on a plant, containing seven good-sized Peas. Ripe seed green and wrinkled.

Sown February 19th; bloomed June 22nd; slatted July 2nd; and ready to gather July 26th.

This is the latest of all the varieties. On the 6th of August it was in full bearing and quite green, while every other sort had either ripened off or was fast approaching the condition of ripeness.

Synoptical Arrangement of the Varieties of Peas, and the Dates on which they were ready for gathering.

I. FRAMES.		V. IMPERIALS.	
Dillstone's Early	June 22nd.	Fairbeard's Surprise	July 9th.
Sangster's No. 1	— 29th.	Harrison's Glory	— 12th.
Early Emperor	July 3rd.	Burbridge's Eclipse	— 13th.
Danecroft Rival	— 3rd.	Flick's Imperial	— 14th.
Tom Thumb	— 3rd.	Banksian Marrow	— 14th.
Telegraph	— 5th.	Scimitar	— 16th.
Early Ringwood	— 6th.		
Early Frame	— 7th.	VI. WHITE KNIGHT'S.	
Dickson's Favourite	— 7th.	Fairbeard's Nonpareil	July 6th.
Bishop's Long-podded	— 9th.	Monsieur Soyer	— 10th.
Auvergne	— 10th.	Tall White Mammoth	— 14th.
Shilling's Grotto	— 10th.	Maclean's Prohac	— 15th.
Royal Dwarf	— 13th.	Alliance	— 16th.
Victoria Branching	— 16th.	British Queen	— 16th.
II. MARROWS.		Lynn's Wrinkled Marrow	— 22nd.
Champion of Paris	July 5th.	Knight's Dwarf White	— 24th.
Harrison's Perfection	— 7th.	Knight's Tall White	— 24th.
Thurston's Reliance	— 10th.		
Queen of Dwarfs	— 10th.	VII. GREEN MARROW KNIGHT'S.	
November Prohac	— 11th.	Ne Plus Ultra	July 10th.
Egg	— 12th.	General Wyndham	— 20th.
Victoria Marrow	— 13th.		
Danecroft Prolific	— 20th.	VIII. GREEN KNIGHT'S.	
Princess Royal	— 20th.	Advancer	July 3rd.
III. GREEN MARROWS.		Mignon	— 3rd.
Prizetaker	July 6th.	Champion of England	— 10th.
Early Green Marrow	— 10th.	Hairs' Dwarf Mammoth	— 10th.
Matchless Marrow	— 13th.	Epicurean	— 12th.
Garbutt's Amazon	— 20th.	Sea Green	— 12th.
Sutton's Berkshire Hero	— 25th.	Lord Raglan	— 12th.
IV. PRUSSIAN.		Climax	— 13th.
Groom's Superb	July 14th.	Essex Rival	— 13th.
Woodford Marrow	— 14th.	Veitch's Perfection	— 16th.
Batt's Wonder	— 16th.	Tall Green Mammoth	— 20th.
Blue Prussian	— 16th.	Knight's Dwarf Green	— 28th.

The Varieties of Garden Peas, arranged in the Order in which they come into use, showing their comparative Earliness.

Dillstone's Early	June 22nd.	Sea Green	} July 12th.
Sangster's No. 1	— 29th.	Climax	
Early Emperor	July 3rd.	Lord Raglan	
Danecroft Rival	— 3rd.	Royal Dwarf	
Tom Thumb	— 3rd.	Victoria Marrow	} July 13th.
Advancer	— 3rd.	Matchless Marrow	
Mignon	— 3rd.	Burbridge's Eclipse	
Telegraph	— 5th.	Essex Rival	
Champion of Paris	July 5th.	Woodford Marrow	} July 14th.
Early Ringwood	— 5th.	Groom's Superb	
Prizetaker	— 6th.	Flick's Imperial	
Fairbeard's Nonpareil	— 6th.	Banksian Marrow	
Early Frame	— 7th.	Tall White Mammoth	} July 15th.
Dickson's Favourite	— 7th.	Maclean's Prohac	
Harrison's Perfection	— 7th.	Victoria Branching	
Bishop's Long-podded	— 9th.	Batt's Wonder	
Fairbeard's Surprise	July 9th.	Scimitar	} July 16th.
Auvergne	— 10th.	Alliance	
Thurston's Reliance	— 10th.	British Queen	
Shilling's Grotto	— 10th.	Veitch's Perfection	
Queen of Dwarfs	— 10th.	Danecroft Prolific	} July 20th.
Early Green Marrow	July 10th.	Princess Royal	
Monsieur Soyer	— 10th.	Garbutt's Amazon	
Hairs' Dwarf Mammoth	— 10th.	General Wyndham	
Champion of England	— 10th.	Sutton's Berkshire Hero	} July 22nd.
Ne Plus Ultra	— 10th.	Tall Green Mammoth	
November Prolific	July 11th.	Lynn's Wrinkled Marrow	
Egg	— 11th.	Knight's Dwarf White	
Harrison's Glory	July 12th.	Knight's Tall White	} July 24th.
Epicurean	— 12th.	Knight's Dwarf Green	

PINCHING THE SHOOTS OF CURRANT TREES.

WILL you inform a constant subscriber "G. H.," if the practice of nipping off the shoots of Currant trees previous to the fruit ripening is a good one? Also if the lateral shoots which are sometimes produced are considered weakening to the trees? In short, is it a practice you would recommend when the trees and fruit are very much shaded by an abundance of shoots? I believe I saw it recommended in one of the Numbers of THE COTTAGE GARDENER, but cannot lay my hand on it to

show a gardener who tells me I am ruining my trees by such nipping.

[If we could get at it, we would nip every Currant tree as you propose. The shoots that come so thick in the centre of the tree we would shorten to 3 inches or 4 inches, and we use these young shoots for many purposes, such as cracking them in the middle and using them as pegs for flower-buds. If done early, say in the middle of June, some lateral shoots will start from the points of the shoots thus shortened, and these may grow two or three joints and be nipped again. This will swell up the buds near the base, and make them more fruitful when you cut back to two or three buds in winter. The stopping should be confined to nipping the points merely of the main leading-shoots in June, in the case of young bushes that you wish to get larger, and such nipped shoots will often, nay generally, show fruit their whole length next season. In the case of old bushes as large already as are wanted, the shortening of all shoots may be proceeded with as stated above for the central shoots. These stoppings apply to bushes in vigorous condition. In old bushes pretty well worn out, it is a good plan to encourage young shoots from the bottom and otherwise well placed on the bushes, and merely nip the points of them in June and the beginning of July, and remove the old exhausted branches as soon as the fruit has been gathered. We have thus several times renewed old bushes, and found them bear much earlier and more plentifully than young bushes.]

TRADE LISTS RECEIVED.

James Veitch, jun's., Plant Catalogue, Royal Exotic Nursery, King's Road, Chelsea.—This is an admirable catalogue, and contains a vast number of novelties in the way of stove and greenhouse plants. We observe it is very rich in Ferns and Orchids.

A General Descriptive Catalogue of Plants, Trees, Shrubs, &c., by Milne & Co, Wandsworth Road, London.—An excellent general catalogue of a select nursery stock.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Artichokes, when cutting the heads for use cut the stems close to the roots. Clear the stools from decayed leaves, and loosen the surface of the soil about them with the hoe. *Broccoli*, no time should now be lost in getting out the varieties which come in during the autumn. *Cauliflowers*, earth up those that were put in the beginning of last month; plant more for coming into use in the autumn. *Celery*, get out the main crops; loosen the soil about the early crops, and give it good supplies of water, if there is not sufficient rain to keep the soil quite moist. *Cucumbers*, keep the linings of the frames made up so as to cause a gentle warmth to circulate through the bed; for, however warm the weather may be, a mild bottom heat is necessary to procure fine handsome fruit. *Garlic* and *Shallots*, as soon as the tops begin to wither pull up the roots; if favourable weather allow them to remain on the ground for a day or two to dry, then to tie them in bunches, to be hung in a dry airy shed or fruit-room. *Lettuce* sow a little of the Paris, White and Bath Cos in drills where the plants are to remain. *Mushrooms*, save and prepare horse-droppings for beds, to produce through the autumn and winter. Take care that newly-made spawn bricks are thoroughly dry before being laid away. *Spinach* sow a few rows, to keep up a succession; thin the preceding crop, and keep it watered in dry weather. *Turnips*, thin out the last sowing to a foot or 15 inches apart. And as the weather is now favourable, the main autumn crop may be sown.

FLOWER GARDEN.

As the bedding plants are now beginning to make vigorous growth, go over the beds frequently, and keep the young shoots of *Verbenas*, *Petunias*, *Salvias*, *Calceolarias* *amplexicaulis*, &c., nicely regulated and pegged down until the ground is fairly covered, when the shoots may be allowed to grow more at liberty. Continue to put in cuttings or pipings of *Pinks*; they root freely on a gentle bottom heat under hand-glasses, to be kept shaded, or they will succeed on the north side of a wall or fence. The cuttings to be merely pulled out of the old plants at the second or third joint, and pressed between the finger and thumb into light sandy soil, watered with a fine rose before and after

they are inserted; no trimming of the leaves or cutting to a joint is required. Any one who is desirous to improve the race of this beautiful and fragrant flower should attempt to do something in the way of cross-breeding. The most showy herbaceous plants—such as *Phloxes*, *Pentstemons*, &c., will strike freely in some light garden soil in any shady situation on the north side of a wall or fence. *Carnations* and *Picotees* to be layered: this is performed by cutting through the second or third joint, bringing the knife about half an inch up the centre of the shoot, making a tongue; the small portion of stem beyond the joint is cut back to it, and when pegged down in the soil, which should be fine and light, they will soon emit roots.

STOVE.

Continue to keep up a moist, warm atmosphere to plants in active growth. Such of the *Orchids* as have made their growth (known by the pseudo-bulbs having attained their full size) to have less water, and to be gradually inured to a lower temperature and a greater degree of dryness. It should not, however, be forgotten that this progression to a state of rest should be slow and gradual. Destroy by every means beetles and other pests to *Orchid-houses*.

GREENHOUSE AND CONSERVATORY.

Pelargoniums when done blooming to be exposed in an open situation to ripen the wood for a week or ten days, to be then cut down, and cuttings made of their tops; the old plants to be kept rather dry until they begin to break afresh, and the cuttings to be inserted in any open, warm situation, where they will strike root freely without any bottom heat. A number of hard-wooded plants which were cut back a few weeks ago will now be making fresh growth, any requiring to be shifted into larger pots should have their roots well watered before potting. Before potting, carefully loosen the outside roots; after potting, the plants to be kept close for a few days, and to be syringed overhead daily. *Brugmansias* and other very vigorous-growing plants to be frequently assisted with manure water, and as they are liable to get infested with insects the syringe to be frequently applied to keep them under before the plants get into bloom. *Cinerarias*, whether seedlings or suckers, to have regular attention, and those intended for autumn work to be potted forward without delay.

W. KEANE.

DOINGS OF THE LAST WEEK.

SUNSHINE and showers have been its characteristic—rare weather for *Turnips*, but troublesome for the hay, reviving the fresh-planted greens in the kitchen garden, and just suiting the beds in the flower garden, many of which would take a shower every day and thrive well with it, provided there were plenty of gleams of sunshine between the showers. Except that be the case, warm sunny summers, though rather dry, are the best for the flower garden.

Kept planting out greens. *Lettuces*, *Endive*, and *Cauliflowers* as opportunity offered. *Celery*, too, as ground could be got, and watered what had been put out early, as the showers were too slight to do more than refresh the foliage. Hoed carefully for the last time among *Carrots*, *Parsnips*, *Onions*, and all crops generally, finding it is the most economical plan to cut up weeds before they are an inch high if possible. Soaked the seeds of *Bishop's Dwarf Pea* and others for thirty hours in water, and the most of them are coming nicely a few days after being sown, while others from the same bag sown at once have come up very badly. The seed was old in either case. With some old seeds such a plan would be ruinous; but the old-fashioned practice as respects the *Pea*, of soaking the seeds some hours before sowing, is worthy of more general adoption. All these were showing the radicle or young rootlet before being sown, and the *Pea* was swollen to a good size. Many showed no radicle at all, and some that did parted in two when touched, and thus lost the cotyledons or nursing seed-leaves; but the great proportion are now growing nicely, when those sown at once in the usual way from the same bag have rotted so much in the ground, that if left alone there would not have been half enough for a crop. In a day or two—say the 4th or 5th of July, we shall sow our last *Peas* for the season—such as *Bishop's Long-podded Dwarf*, and, perhaps, a row of an earlier kind, just to give a chance if the weather is fine at the end of October.

Regulated *Melon* plants, cut back and pruned where we wished them to produce a second crop. It is of less importance now having strong shoots, as the roots are strong, and when well

watered will soon give vigour enough if insects are absent. Stopped and set blossoms of succession crops and planted out more, and prepared a dung-bed or two for frames for a late crop. The heating matter consisted of nearly equal portions of short grass from the lawn, mixed with the long litter from the stable. These moistened and heated each other. From 20 inches to 30 inches of this mixture were put together, fairly trod and beat, and then 1 foot of leaves that had already done service for early Potatoes was put over them, and then the soil, and enough of heat will be given to give a good start, and a little lining in autumn will keep up the heat that is wanted more than the sun will give. It will be observed that the covering of leaves is the great regulator.

Trained and stopped Cucumbers and Marrows under hand-lights and other lights soon to be taken from them. I feel convinced now that many forms of Cucumber disease are owing to a sour, though a fresh well-aërated soil. I did not like the soil at my command for general purposes, but just then could not well manage to encroach on the sides of the highway, our favourite reserve for a fresh supply. Cucumber plants growing in a compost, of which our general heap formed a part, were beginning to show traces of the leaf curling as it did last year, and as we had plenty they were pulled out. Three lights near them, grown in soil scraped chiefly in spring from a ridged-up piece of ground in the kitchen garden, mixed with a little well-aërated leaf mould, have borne profusely and are in fine health. This general heap was obtained from sods paired off a meadow and now nicely decomposed and friable; but the outside besides grass have a fair proportion of Sorrel growing upon them. The superior health of those grown chiefly in common kitchen-garden soil is another proof that such soil well aired will grow all common plants well, whether in pots or out of them. The above heap of decomposed turf chiefly seems to answer many things extremely well, though it does not seem to suit Cucumbers. Melons are much at home in it. Last season I never had better Melons. Cucumbers beside them were very inferior, and similar soil constituted the groundwork of both, though that for Cucumbers was much lighter in texture.

Some one may ask, Why use such soil? Why not get soil or turves from upland pastures, not likely to have acid enough to foster such plants as Sorrel? Ah! why not indeed; except that nine gardens out of ten must make the best of what they can get, and not what they would wish to have? I know some hundreds of acres where the top sod is full of fibres as scarcely to be torn asunder by the hand, and held to the nose is as sweet as a nut, and to the eye is almost as pretty as a "nut-brown maid," but I have never yet been able to coax a bit of it into my possession. I must get to the roadsides again, even though that gives almost the certainty of plenty of weeds to pull and pull again; and may occasion a confab with some road-surveyor, who will at least pretend that he cannot see you are doing him a favour in removing those accumulated mounds and ridges at the sides, that make his well-metalled roads little better than slushy ditches in wet weather.

Removed the covering of leaves, &c., from the Vine-borders. Could not have done it sooner if we would, and would not have wished to do it sooner if we could. Early covering and late removing are the things when the roots are at all near the surface. Will as soon as finished stir the surface soil, so as just to break it, and water with manure water heated to 80° at least, so that the border shall not be suddenly cooled; and in a few hours afterwards will throw a little dry soil over, alike to look neat and to keep heat and moisture in. When the sun gets at its strength, so as to heat the border well, will mulch it slightly with horse-droppings or sheepdung, and the warm rains that may be expected will wash in its virtues. In autumn we will remove the most of the mulching before covering again. We consider the exposing of the border in the hottest part of summer an advantage so far as medium wood and extra fruitfulness are concerned. When the roof of a house is pretty well covered with Vines, those with roots in front outside will generally do better than those planted inside against the back wall, because the sunbeams act more directly on the soil. When the Vines are thin on the roof—say from 4 feet to 6 feet apart, those planted against a back wall will do admirably, as the sun will pass through to the soil, and if the rods or main shoots are trained down the rafter the wood will be extra short-jointed; but when the roof is thickly clothed with foliage, or there are stages or tables in the house for plants, these will so far prevent the sun even acting on the soil in which the Vines grow, and

they will not grow quite so well in consequence. Our old gardeners knew what they were about when for general purposes, though they planted the Vines inside, the roots were encouraged to go outside, also in a border with a good slope from back to front, so as to catch the rays of the sun. Fine wood, and fine large bunches, may be obtained from plants with roots so deep that the heat of the sun exerts little influence upon them; but for the extreme of fertility, and the extreme of saccharine matter in the fruit, we are prejudiced enough to believe that the roots must be within the reach of the heat of the sun, and be prevented getting too cold at all critical periods—that, in fact, instead of being shaded, the sun should shine freely on the soil in which they grow.

Watered Figs in house, giving air night and day, and a little fire heat in a dull wet day to prevent anything like damping or spotting. If kept too damp or too close, the end of the Fig will begin to ripen, and then to decay, before the fruit as a whole is fit for the table. This is one of those fruits that to have it in perfection can scarcely be sent any distance. I like to see it hang on the tree until it is cracking all over, and the rich juice peeping out in amber globules. Good drainage, abundance of water when swelling, and thorough ventilation when ripening, if a small fire should be made to secure it, and due thinning and stopping the shoots, are the conditions of success. The syringe should only be used early in the afternoons of hot days, so that the leaves are dry before night; in fact, when many fruit are ripening, it is best to lock up the syringe, and merely damp the floor and ground a little when the day is very warm. A skiff from the syringe is apt to make fruit ripening crack on the one side before the other side is soft or ripe enough for use. With moderate care the Fig is seldom troubled with any insects that need washing off.

Thanks to strewing the ground as mentioned sometime ago with soot and lime, we have scarcely noticed the vestige of the presence of a slug in the Strawberry-beds; and covering with nets has kept the Blackbirds and Thrushes at bay, but that has set them in revenge to pilfer the half-ripened Currants and Raspberries, and some means, as rattles and looking-glasses, must be used to save them till we get more nets at liberty. These nets are now got so reasonable, that there need be no complaint among our enthusiastic amateurs, that it is no use growing Strawberries, for the birds will take them all; and then they so love the birds and like to hear their notes on a morning whilst they lie in bed in a half-dreamy, philosophising mood, that they look upon killing them as little better than murder. Well, the nets will keep the bulk, and just leave a few outsiders to your friends the sweet birds, which rough people that have no poetry or romance in their composition, call by the ugly name of vermin! Thanks, too, to a good watering with manure water—the drainage of the farmyard, which I can get, though the manure itself is a too gingerly subject to build hopes upon, the Strawberries in quantity and size have scarcely been surpassed before. A lady who was enjoying a plateful was next to horror-struck when informed that the fine mouthfuls were the consequence of the dirty black water thrown over them. We presume her liege lord hit upon the manoeuvre in order that he might get the lion's share of the spoil. We hardly believe the good wife has been quite reconciled, though assured the black water was given about the time the plants were in bloom, and that the showers since then had not left a trace of it on the fine fruit. Covered part with Nottingham netting to prolong their ripening. Watered Eltons and Eleanora on a north border just swelling, which will come in late, and be succeeded by Black Prince and Keens' now showing bloom, turned out of pots forced early. Watered Raspberries to swell the fruit well, and syringed all trees against the walls to keep them clean. Pruned and regulated Apricot trees, and shortened and removed the breastwood on Pear trees, &c., trying to keep down all insects not destroyed.

In the flower garden have been very busy with pegging and bush-sticking, as I can scarcely leave a plant without being secured, and be safe from a high wind taking them up by the roots, or at least breaking all the brittle ones to pieces. This occasions much extra labour, but then the plants are comparatively safe in all weathers; and though these twigs are no ornament at first, their seen utility at once gives them the beauty of fitness, and ere long a trace of them will not be seen. Tied up Hollyhocks, Dahlias, and other plants needing strong stakes. Fresh regulated the conservatories, &c., removing Pelargoniums past their best or needing more picking off decaying flowers

than they were worth. Also setting out first in the shade, Azaleas that had bloomed late, replacing with more Pelargoniums, large Fuchsias, &c., training the latter so as to be masses from the pot upwards, and yet show not too much of stiff dressing. A few Ferns and plants with fine foliage, as the Begonias, will be placed on the lower shelf of the north side of the stage for variety, and to dull a little the masses of bloom. Potted other plants to come on in succession; amongst others, Balsams, &c., to be grown in pots. We have been too scarce of plants this season to plant any out of doors, though few things well treated make more handsome bushes in the autumn. What we have potted will come in for house decoration, and we well want strong, bushy, rather dwarf plants. The plants did not get the exact treatment they ought to have had—they stood too long and rather thick in small 60-pots. The strongest of these were put at once into 24's, a few into 16's, and the bulk into 32's, the soil being rich and not at all light. A couple of old frames being at liberty, a slight hotbed was made for them, formed of a foot of grass and straw litter, and another foot of half rotten leaves about the litter and grass. This heated nicely and gently, and the leaves kept down all steam. The pots were plunged in these beds, and air left on back and front in case even a breath of steam should come. The gentle bottom heat, and the air are causing them to grow with great robustness and vigour, so that in a few days more room must be given. The lower shoots have been pegged over the mouths of the pots, and all flowers will be removed for several weeks.—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c.,"* 162, Fleet Street, London, E.C.

LEMON-KIDNEY POTATO.—"W. D." wishes to know the name and address of the person who first introduced the Lemon-Kidney Potato.

VINE LEAVES (*J. S., Solihull*).—The appearance on your Vine leaves is not caused by insects, but merely indicates a vigorous constitution in the plants.

CARROT MAGGOT (*Z. A.*).—The grub that infests your Carrots is the Carrot Maggot. The best remedy is to well work the soil by trenching and manuring, or to mix spirits of tar with sand till well saturated, and apply it to the soil before digging, in the proportion of one gallon to 60 square yards.

PETUNIAS AND BLUE POLYANTHUS (*W. G.*).—Your Petunia flowers were dried too much, and so stuck to the paper in which they were packed that we could not judge them properly, but it appears to be a gay, single flower, with a white ground, and light blue or purple stripes like the one which Mr. Ferguson, of Stowe, exhibited at the opening of the new Horticultural Society's garden. If it is of a good habit, there is no doubt but it will make a fine bedder, and we think it highly worthy of being so used. If you had put the flowers singly, between folds of the thinnest oilskin, they would have come quite fresh.

SENDING CUTTINGS BY POST (*F. M. E.*).—Many thanks. The cuttings came quite fresh in the oilskin folds. It seems evident that oilskin will preserve flowers and tender cuttings better than any other thing, and in a small tin case Heath cuttings could be thus sent by post to any parts in the three kingdoms.

ONION MAGGOT (*New Subscriber*).—When "the white maggot with a black head" is found in the bulbs of the growing Onion crop, and the leaves yellow, we know of no remedy. The course we should pursue is to sprinkle some guano over the surface of the bed, the ammoniacal fumes from which might prevent the parent fly of those maggots (*Anthonomya ceparum*) continuing to deposit her eggs within the leaf-sheaths of the Onion, which she does close to the ground, from May to September. A drawing of the fly, and full particulars concerning its habits are in *The Cottage Gardener's Dictionary*.

ROSES MILDEWEED (*A Subscriber*).—Your Roses are mildewed. Dust them with flowers of sulphur, or syringe them with Gishurst Compound.

ORCHARD-HOUSE (*J. L. B.*).—Your shed with boarded sides 4 feet high, if completed by having a span-roof, all of glass, and well ventilated, would do very well for an orchard-house. There is no benefit arising from a heated house in raising early chickens. It weakens them too much. If you heat your proposed "orchard-house" it ceases from being one, and becomes a forcing-house, in which case the sides ought to be glazed; for if you induce growth in winter the great difficulty is to obtain light sufficient to render that growth vigorous.

ROSE LEAVES MILDEWEED (*L. E.*).—The yellow fungi in patches on the under side of your Rosa leaves, are of the *Uredo Rosee*. Try the effect of dusting them with flowers of sulphur, and give the roots a good soaking with liquid manure twice a-week. Mulch over the roots to keep the soil moist.

GRAPES NOT COLOURING (*Charles Edwards*).—Give plenty of air, and if the fruit is much shaded by the foliage, expose it more fully to the influence of the sun.

GREEN GAGE LEAVES BLIGHTED (*F. C. Hants*).—It is only an excessive development of the parenchymous plate of the leaf. A somewhat similar distortion sometimes occurs in over-luxuriant Vines in the forcing-house.

In a more aggravated form, it is the "histering" of the leaves of our Peaches and Nectarines on walls.

DESTROYING ANTS (*W. W. B.*).—Scatter over their haunt at the foot of the plant guano, or gas lime soaked in the ammoniacal liquor of the gas works. Mr. March's Design for the Table (*W. W.*).—We have made arrangements by which we shall be enabled shortly to publish a figure of Mr. March's prize design for decorating the dinner table.

NAMES OF FERNS (*Aethen*).—A red-stemmed variety of *Athyrium filix-femina*; or it with a creeping caudex. *Athyrium asplenoides*, var. *angustum*. (*Constant Subscriber*).—1. *Adiantum macrophyllum*; 2. *Nephrodium molle*.

NAMES OF PLANTS (*C. F.*).—1. *Geranium columbinum*; 2. *Stachys sylvatica*; 3. *Spiraea ulmaria*. (*M. B.*).—Your Fox-glove flower is not double—that is, there is no multiplication of the corolla; there is merely a deformity, or a flower-bud, growing out of the centre of another flower-bud. Your three plants are *Clematis integrifolia*, *Campanula speciosa*, and *Spiraea japonica*.

FLOWER SHOWS FOR 1861.

JULY 10th. ROYAL HORTICULTURAL SOCIETY. (Rose Show.) *Garden Superintendent*, G. Eyles.

JULY 18th. TOWCESTER FLORAL AND HORTICULTURAL SOCIETY. *Sec.*, T. B. Rodhouse, Towcester.

JULY 18th. *Prescot*, *Sec.*, J. Beesley.

AUGUST 9th. BELFAST ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) *Sec.*, George A. Carttuthers.

AUGUST 14th. FORTSEA ISLAND. *Sec.*, H. Hollingsworth, Southsea; SEPTEMBER 2nd. HECKMONDWIKE. (Floral, Horticultural, and Agricultural.) *Sec.*, G. Kelley, Heckmondwike.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) *Sec.*, W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. *Sec.*, E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 13th and 13th. STOKER NEWINGTON CHRYSANTHEMUM SOCIETY. *Sec.*, W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) *Sec.*, W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, AND HOUSEHOLD CHRONICLE.

GRUMBLINGS OF POULTRY FANCIERS.

WE receive many statements and counter-statements from amateurs—some telling us of marvellous success, others complaining of disappointments; it is evident that the age of credulity is not past. Thus, we have seen a letter from a lady, enclosing seventy-two postage stamps, and requiring to be supplied with four warranted Pheasant's eggs, which must be selected to produce a cock and three hens.

P.S.—Each egg to be from a different strain, as they are to breed from next year, and she would not like to breed in-and-in.

Next, an amiable and right-minded man has made up his mind to keep a few fowls, and, being desirous of stocking, he buys a couple of pullets, having previously made up his mind as to the number of their produce both in eggs and chickens. One of them is bent on becoming broody only a few days after receipt, and after laying only a few eggs. He considers this a fair cause of complaint, as the bird has not fulfilled the condition of a profitable animal.

A third complains that his Spanish hens will not sit, and the person of whom he bought them omitted to tell him so. He says he is determined to keep only one sort, and, therefore, asks what chance he has of a breed?

When friends tell us of the drawbacks and tribulations of our common pursuit, we often think of the Inca roasting beside his prime minister, and saying, in answer to the complaints of the latter, "And I, am I on a bed of roses?"

Have we not gone through every phase of the poultry pursuit, and are we not more enthusiastic than ever?

"Sisty," says Mrs. Caxton, for the "lame duck" was not, as some people suppose, an exchange allusion to Caxton, senr.'s, bad speculation. By the way, did you ever notice there are those who cannot see anything in an ordinary point of view. Plots, counter-plots, and conspiracies spring up like mushrooms, and when Thomas slyly squeezes or pinches Phoebe as they pass at the dining-room door, such an one will prove it had nothing to do with any affection "him feels for her," but refers to something that has been said or done while they were in the room. When the last-mentioned domestic asks for an increase of wages, the new-fashioned monthly holiday, or objects to clean the dining-room grate, it is not the temporary uppishness of a smart and not badly-disposed girl, but part of a monstrous plot by the employed against the employers. The "lame duck" then, was the way in which the amateurship of Mr. Caxton showed itself, and the love of poultry was hereditary. "Sisty,"

says Mrs. Caxton, "it is too bad: we have neither eggs for the kitchen nor a chicken for the children. I do not care for myself, but a change is absolutely necessary for them, and they tire of mutton, mutton continually." Sixty good-humouredly smiles, and after a mental calculation says, "Let me see. There is that Spanish cock chicken, his comb falls a little; there is a Dorking is rather humpbacked." Mrs. Caxton takes these as an instalment, but does not like her children to have deformed things to eat. Then as to eggs. Cook says she has not enough for use; and as for one on the breakfast table, such a thing is never seen. There was plenty of poultry and eggs till Mr. Caxton took to exhibiting and won the prize at Birmingham, and for her part she wished he had never begun. This is one of the tribulations, and should be avoided by a proper supply for the establishment. It is not only politic, but it is profitable very often, to lessen the numbers that are kept, and rather to turn doubtful birds into a present though small good than to allow them to encourage hopes that can never be realised. Lopping combs will not rise, and crooked backs will not straighten with age.

We have treated the subject lightly, but many will admit the truth of the picture and the fidelity of the colouring. It would not only save grumbling, but many a yard would be benefited by the sacrifice of a few of its inhabitants to the "children's dinner."

PROFITABLE POULTRY KEEPING.—No. 8.

(Continued from page 226.)

In the *Poultry Chronicle* for May 7, page 106, a correspondent "E. C. C.," calls in question my inferences generally, and takes exception to various items of the balance-sheet given April 23rd, page 70. In redemption of my promise I now reproduce that account, and with each item carried out separately.

I would premise, that throughout the entire series of papers I have been careful to advance nothing incapable of proof, and that I have in fact understated my case; thus possessing an answer to the objector, and encouragement for the inquirer. Mere assertion, however, brings not conviction, so I proceed at once to facts, and ask only "a fair stage and no favour" from those interested in the subject.

That no point urged by "E. C. C." may be omitted, I will take his objections seriatim. He states—

1st. That I make no charge for purchase of original stock.

This misapprehension may arise from the comparatively small amount charged against "Interest," &c. Certainly I was not quite so verdant as to stock my yard from that of any London dealer in fancy birds. I purchased chiefly at a country market town, having a good supply at reasonable prices. Not one hen was over two years old, and the greater number were the previous year's birds. The roosters were two and three years old. The cost was—birds, £13 7s. 6d.; expenses, 8s.; total, £13 15s. 6d. Average price, 2s. 11½d. (nearly) a-head. At five per cent. on outlay, the item interest will stand, 14s. 9½d. (See account).

It will be convenient to take the 2nd, 3rd, and 5th objections together.

2nd. That I make no allowance for filling up vacancies, and ultimately replacing the old birds.

3rd. That no eggs are deducted for sitting, nor for the few requisite for the brood.

5th. That no charge whatever is made for the sustenance of the original stock.

In the balance-sheet I gave 18s. 9d. as the average return from each hen; being the amount of sales of eggs and chickens. And while the pecuniary result is correct, it does not follow that there are no variations in the facts themselves. No one supposes, for instance, that each hen lays exactly 132 eggs, that 120 are sold, that she sits on the remaining twelve, and rears exactly seven chickens out of the twelve that may be hatched. (See account.) The actual average return was (within a fraction too small to bring forward), 22s. 1d. per head a-year. (See account.) Thus leaving an ample margin for replacing vacancies in breeding stock, for eggs for sitting (for I gave none to any but very early or very late hatches), and for food for original birds. Eggs for sitting were charged at half the then selling price; and the chief sitting season being when eggs are cheapest, the cost per sitting did not reach 7d. (See account.)

4th. That no charge whatever is made for chickens or eggs being taken to market.

To have made any such charge in my case would have been

incorrect, inasmuch as the dealers called upon me several days in the week. Thus for the five objections; but there is one or two more still to meet.

In page 107, sixth paragraph in first col., "If 'LEIGHTON' can obtain 1d. for each egg taken all the year round . . . he is, indeed, very lucky."

Let the following speak for itself. It is not compiled from my own experience alone, but from that of several poultry keepers.

PRICES OF EGGS IN AND NEAR LONDON FOR THE TWELVE MONTHS.

February to middle of March, 1d. each, 6d. for five, 7½d. for six. December and January, 7½d. for six, to about 20th December; from this to the middle of January (according as the winter may be open or cold), 1½d., 2d., and 2½d. each has been and again will be obtained for new-laid eggs. From the second week in Jan. and into Feb., 1½d. each and 2½d. for two is the usual price.

I have known 1s. given for four eggs in December and January. This is an exceptional case, and I have, therefore, not quoted it as a price.

In the seventh paragraph same page and column, "And now to conclude my remarks with the article of food, which is charged £31 16s."

My published account being credited with the cash returns from each bird only, so was it debited only with the amount of food purchased up to the last lot of chickens being sold. My object was to show what might be done, and I confined my remarks in the earlier papers to eggs and chickens alone. These, however, as my later papers show, are not the chief items of profit in poultry keeping. Much more may be made by fattening fowls and capons. And besides these, there are still other profitable matters—feathers and dung, and the garden crops which the excellent manure obtained from the hen-house is mainly instrumental in producing.

I will introduce the balance-sheet as given at page 70 of the *Poultry Chronicle*, for April 23rd, but with each item carried out separately.

Dr. EXPENDITURE.	£ s. d.	Cr. RECEIPTS.	£ s. d.
To food (purchased).....	31 16 0	By (cash) returns from 100 hens, at 18s. 9d. a-head.....	93 15 0
To proportion of rent and rates 5 8 3			
To loss, 10 per cent. on stock, —i.e. 10 hens at 2s. each ...	1 0 0	*Viz., 120 eggs at 1d. 10 0	
To interest	0 14 9	7 chickens at 1s. 3d.	8 9
To management 9 9 0	16 12 0		18 9
By profit—Balance	45 7 0		
	£93 15 0		£93 15 0

I cannot do better than introduce here my account in its entirety.

Dr. EXPENDITURE.	£ s. d.	Cr. RECEIPTS.	£ s. d.
To food (purchased).....	31 16 0	By cash received for sales of eggs and chickens under 13 weeks sold from 100 hens, at 18s. 9d. each.....	93 15 0
To proportion of rent and taxes	5 8 3	By cash for 30 fat fowls, at 5s. each.....	7 10 0
To management 9 9 0		By ditto for 9 Capons, at 8s. 3d. each.....	3 12 0
To eggs for sitting	2 10 0	By 35 pullets kept for breeding-stock, worth 2s. 6d. each	4 7 6
To loss on stock, 10 per cent., —i.e., 10 hens at 2s.	1 0 0	By 1½ bushels (nearly) of onions, 10 bushels sold at 4s.	2 0 0
To interest (live stock) ...	0 14 9	4½ consumed—at 2s. 6d. each.....	0 11 3
To ditto (dead ditto).....	0 3 6	By feathers 27½ lbs., worth to use certainly.....	1 0 0
To repairs	0 10 0		
To digging and preparing onion-bed, 5s.; seed, 2s.	0 7 0		
To meal, 40s.; bran, 10s. ...	2 10 0		
To 20 bushels of potatoes from own garden, at 2s.	2 0 0		
To value of dung	0 16 0		
To broken food from house ..	0 0 0		
To vegetables from garden ..	0 0 0		
To 2 acres grass run, and sir ad lib.	0 0 0		
By profit—Balance	55 11 3		
	£112 15 9		£112 15 9

It surely must have happened to "E. C. C." to have missed a hen for a few weeks, and for her to return with a fine hatch of possibly fourteen to sixteen chickens, and did such hen cost him anything the time she was away? Decidedly not, and the

* The item "management" stands, as it should, on the debit side of the account; but inasmuch as no money was paid out, the care of the poultry devolving on members of my family, I claim it as profit. Therefore, £55 11s. 3d. added to £9 9s. equals £65 0s. 2d., or a net profit of over 110 per cent.

nearer they are allowed to approach a state of nature in their lives the better. Hundreds, nay thousands, of cottagers' hens rear first-rate broods, and are never—I say it advisedly—are never fed by their owners but in the extreme cold weather. The hens are their own purveyors, and right well do they manage.—LEIGHTON.

BLACKPOOL POULTRY EXHIBITION.

THIS Show was held on the 3rd, 4th, and 5th inst. Although this was the first attempt at holding a poultry show at Blackpool, the effort has been a most successful one, so much so as to far exceed the most sanguine anticipations of the Committee. The only drawback being the annoyance arising from the negligence of the railway company (a most blameable mistake too on their part), in transmitting the pens to Lancaster instead of Blackpool. This, of course, caused both great vexation and delay in the penning of the birds, although by anxious dispatch on the part of the working Committee, when the pens did eventually arrive no absolute impediment to the admission of the public took place, notwithstanding with a less energetic body of officials the consequence might have been the complete upset of all their plans for future Meetings. Surely railway companies should be more careful of avoiding such mistakes, where everything depends entirely on strict regularity. In common justice to the Committee, we feel bound to say not a single bird was at all injured by this unlooked-for mishap. All the poultry after being carefully fed and watered immediately on their arrival, were at once well housed in their travelling baskets until, at length, the show-pens safely reached Blackpool. It was to ourselves somewhat a matter of surprise, that at this unfavourable season of the year for show-fowls, combined with the fact that it was the first Blackpool Meeting, so capital a collection of really first-rate poultry could be got together.

The *Spanish*, *Game*, and *Grey Dorking* classes were unexceptionable, certainly quite equal to any we have witnessed this season. In the former the world-wide-known birds of Mr. Teebay, of Preston, held their own, though run uncomfortably closely by the fowls of Mr. R. W. Boyle, that had been subjected to a very boisterous voyage from Dublin, expressly to enter the lists on this occasion. This hardship, as in the other pens shown by this gentleman, told seriously to their disadvantage. We also noticed many other pens that have travelled even far longer distances to the Blackpool Show, attributable, no doubt, to the very liberal prizes of £3 10s., £1 10s., and 10s., proffered as prizes in the general classes. Such amounts must excite a strong competition. In *Grey Dorkings* the class was of unusual excellence throughout; and we are told the Judge himself admitted so close was the competition, that half a dozen prizes could have been easily awarded with as perfect justice, as the three apportioned by the rules of the Society, to this single variety. The *Game* classes were, like they generally are in the northern counties, not only well filled, but with most extraordinary specimens. It is a remarkable feature of the Show, worthy of especial mention, that though Black-breasted and Brown Reds competed together in several classes, only the latter colour could be found among the prizetakers. The Brown Reds certainly were far the most preferable as to condition, and fully merited the position assigned them; but we confess the second-prize sweepstake cock, a "squirrel-tailed" one, did not meet our views, particularly where so capital specimens were numerous. The *Cochin* classes were excellent. Mr. Stretch, of Liverpool, taking precedence with his Buffs, and second prize with his Partridge-coloured ones. The White Cochins were also worthy of especial mention, and seemed very attractive to the company, as being a somewhat unusual breed in the neighbouring district. The *Hamburgs* generally, and the *Polands* likewise, numbered both numerously and of extraordinary merit. The Sebright *Bantams*, with the exception of Mr. Harvey Dutton Bayley's prize pens, were not good; but the *Game Bantams* were meritorious. The *Malays*, though but few in numbers, were very good. The *Chicken* class was composed of first-rate specimens of both *Grey Dorkings*, *Spanish*, *Hamburgs*, and *Game*.

The *Ducks* generally, were not so praiseworthy as usual.

In *Geese* and *Turkeys* not a single pen was entered.

The *Pigeons* were but few, but many pens of very high character were exhibited. We particularly noticed a pair of as good white Owls as we have seen for some years past.

We are informed the Show was throughout well and fashion-

ably attended, and that its Committee, notwithstanding the present liberal prizes offered, intend to increase their premiums in coming years. These gentlemen seemed determined to go ahead as to their future meetings, and most probably a large increase of entries will be induced by the still more valuable prizes and enlarged opportunities of success that will then be offered. The following is the list of awards:—

SPANISH.—First and Second, R. Teebay, Fulwood, Preston. Third, H. Lane, Birmingham. Highly Commended, R. W. Boyle, College Green Dublin; R. Teebay.

DORKINGS (any colour).—First, W. Copple, Eccleston, near Prescot. Second, W. Hill, Heywood, near Manchester. Third, Capt. Hornby, Knowsley Cottage, Prescot. Highly Commended, R. W. Boyle, College Green, Dublin; J. Robinson, Vale House, Garstang, Lancashire; W. Copple; T. Smith, jun., Caletton Villa, Halifax. Commended, H. W. B. Berwick, Helmsley, Yorkshire.

COCHIN-CHINA (Cinnamon or Buff, Brown or Partridge-feathered).—First and Second, T. Stretch, Bootle, near Liverpool. Third, Miss V. W. Musgrove, Aughton, near Ormskirk. Highly Commended, C. Felton, Erdington, Birmingham; H. W. B. Berwick, Helmsley, Yorkshire; Miss V. W. Musgrove.

COCHIN-CHINA (White or Black).—First, R. Chase, Moseley Road, Birmingham. Second, W. Dawson, Selly Oak, Birmingham. Third, G. C. Whitwell, Kendal, Westmoreland.

GAME (Black-breasted and other Reds).—First and Third, J. Fletcher, Stonelough, near Manchester. Second, Miss E. S. Moss, the Beach, Aigburth, Liverpool. Highly Commended, T. Wareing, Preston. Commended, T. Venn, Coventry; J. S. Butler, Poulton-le-Fylde.

GAME (any other variety).—First, J. Fletcher, Stonelough. Second, Miss E. S. Moss, the Beach, Aigburth, Liverpool. Third, T. Wareing, Preston. Commended, W. Dawson, Selly Oak, Birmingham.

BANTAMS (Game).—First, T. Wareing, Preston. Second, M. Turner, Preston. Third, H. Shield, Northampton. Commended, G. C. Whitwell, Kendal, Westmoreland.

BANTAMS (Gold or Silver-faced).—First, T. H. D. Bayley, Ickwell House, Biggleswade, Bedfordshire. Second, E. Fielding, Lord Street, Rochdale. Highly Commended, T. W. Hill, Heywood, near Manchester. Commended, T. W. Hill.

BANTAMS (any other variety).—First, withheld. Second, T. H. D. Bayley, Ickwell House, Biggleswade, Bedfordshire.

POLANDS (any variety).—First and Third, J. Dixon, North Park, Bradford. Second, H. Child, jun., Sherborne Road, Birmingham. Highly Commended, C. J. Samuels, Victoria Park, Manchester.

HAMBURGHS (Golden-pencilled).—First, J. Munn, Heath Hill, Stacksteads, Manchester. Second, H. Child, jun., Sherborne Road, Birmingham. Third, Messrs. Carter & Valiant, Poulton-le-Fylde. Highly Commended, R. Parkinson, Market Place, Poulton-le-Fylde. Commended, J. Smith, Sutton, near Macclesfield.

HAMBURGHS (Silver-pencilled).—First, J. Martin, Claines, Worcestershire. Second, J. Munn, Heath Hill, Stacksteads, Manchester. Third, W. H. Kerr, Elm Villa, Worcester.

HAMBURGHS (Golden-spangled).—First, H. W. B. Berwick, Helmsley, Yorkshire. Second, H. Carter, Upper Thong, near Holmfirth, Yorkshire. Third, S. H. Hyde, Taunton Hall, Ashton-under-Lyne. Highly Commended, J. Robinson, Vale House, Garstang, Lancashire; H. Beldon, Park Cottage, Bradford; N. Marlor, Denton, near Manchester. Commended, R. Tate, Driffield.

HAMBURGHS (Silver-spangled).—First, J. Robinson, Vale House, Garstang, Lancashire. Second, J. Dixon, North Park, Bradford, Yorkshire. Third, J. Kay, Central Beach, Blackpool. Highly Commended, R. Teebay, Fulwood, Preston; H. Carter, Upper Thong, near Holmfirth, Yorkshire. Commended, E. Fielding, Newchurch, Rossendale.

MALAYS (any variety).—First, C. Ballance, Taunton, Somerset. Second, J. Dixon, North Park, Bradford, Yorkshire.

GAME CHICKENS.—First, J. Fletcher, Stonelough, near Manchester. Second, J. S. Butler, Poulton-le-Fylde. Highly Commended, R. Parkinson, Market Place, Poulton-le-Fylde; T. Wilkinson, New Gate, Holmfirth. Commended, Miss E. S. Moss, the Beach, Aigburth, Liverpool.

CHICKENS (any other breed).—First, Capt. W. Hornby, Knowsley Cottage, Prescot. Second, J. R. Rodbard, Aldwick Court, Wington, near Bristol. Third, J. Harrison, Central Beach, Blackpool. Highly Commended, Messrs. Hall & Parkinson; J. K. Fowler, Prebendal Farm, Aylesbury; J. Munn, Heath Hill, Stacksteads, Manchester.

DUCKS (Aylesbury).—First, Second, and Third, J. K. Fowler, Prebendal Farm, Aylesbury.

DUCKS (Rouen).—First, withheld. Second, Mrs. J. Alston, Bispham, near Fleetwood. Third, J. K. Fowler, Prebendal Farm, Aylesbury.

SWEEPSTAKES FOR SINGLE COCKS.

GAME (any variety).—A Silver Cup, value £5, the gift of the Society, and a third of the Sweepstakes after deducting expenses.—First, J. Fletcher, Stonelough, near Manchester. Second, W. N. Grimshaw, Pendle Forest, Burnley. Third, Miss E. S. Moss, the Beach, Aigburth, Liverpool. Highly Commended; J. Fletcher; Miss E. S. Moss; J. S. Butler, Poulton-le-Fylde. Commended, A. Hampson, Boulton-le-Moors; Capt. W. Hornby, Knowsley Cottage, Prescot.

SPANISH.—Prize, R. Teebay, Fulwood, Preston.

DORKING.—Prize, H. W. B. Berwick, Helmsley, Yorkshire.

COCHIN-CHINA.—Prize, C. Moore, Poulton-le-Fylde. Highly Commended, J. Harrison, Central Beach, Blackpool. Commended, Miss V. W. Musgrove, Aughton, near Ormskirk.

HAMBURG (Gold or Silver-pencilled).—Prize, J. Smith, Sutton, near Macclesfield.

HAMBURG (Gold or Silver-spangled).—Prize, C. W. Hull, Poulton-le-Fylde.

BANTAMS (any variety).—Prize, T. H. D. Bayley, Ickwell House, Biggleswade, Bedfordshire.

PIGEONS.—*Carriers*.—First, H. Child, jun., Sherborne Road, Birmingham. Second, C. Felton, Edington, Birmingham. Highly Commended, H. Yardley, Market Hall, Birmingham; G. Goore, Aigburth, near Liverpool. Commended, D. Thwaites, Rock Ferry. *Tumblers* (any variety).—First, H. Child, jun., Sherborne Road, Birmingham. Second, J. Percival, Harborne, near Birmingham. Highly Commended, H. Yardley, Market Hall, Birmingham. *Trumpeters*.—First, F. Key, Beverley. Second, J. Percival, Harborne, near Birmingham. *Dragons*.—First, C. J. Samuels, Victoria Park, Manchester. Second, H. Child, jun., Sherborne Road, Birmingham. *Ouels*.—First, D. Thwaites, Rock Ferry. Second, H. Yardley, 30, Market Hall, Birmingham. Highly Commended, F. Key, Beverley. *Jacobins*.—Prizes withheld. *Any other variety not before named*.—First, T. Wareing, Preston. Second, H. Child, jun., Sherborne Road, Birmingham. Commended, R. W. Boyle, Dublin.

FOR THE TWO SMALLEST BANTAM HENS IN GOOD CONDITION.—Prize, R. Tate, Driffield.

The Judges were Mr. Samuel Foulds, of Chowbent, for all the Game classes; and Mr. Edward Hewitt, of Sparkbrook, Birmingham, for every other remaining variety of poultry.

SICKNESS AMONGST POULTRY.

We hear of much illness among poultry, and often of an inexplicable character. Whole yards of strong adult fowls are taken in a night and seem blighted; their combs shrivel, their feathers become loose, and every semblance of condition disappears. Nothing saves them but the free use of stimulants.

Can any of our readers give us information, or help us in any way? Few die from the attack, but they are long in recovering the effects of it.

THE CANARY AND THE BRITISH FINCHES

(Continued from page 229.)

THIRD ORDER—BUNTINGS (EMBERIZÆ.)

1.—THE CORN OR COMMON BUNTING (*Emberiza miliaria*).

German, Der Graunammer.

French, Le Proyer.

THE Common, Grey, or Corn Bunting, also known as Bunting Lark, Bull Lark, and Greyhead, is the largest of our British Buntings. It is generally distributed throughout England, and remains all the year; it is as large, or a trifle larger, than the Skylark, which bird it much resembles in colour, and with which it is often caught and sold: to which circumstance Skakespeare alludes.

The beak is rather deep, somewhat conical in shape, and flattened at the sides; the upper mandible is rather slighter than the lower, and darker in colour, and in the roof of the mouth is a knob or projection, which is a distinctive mark of the Bunting tribe. In plumage it is of a greyish-brown above, and dingy whitish beneath; the back is marked with dark brown spots, and the breast is also spotted.

The nest is usually placed in grass near the ground, the eggs resemble the Yellowhammers', but are rather larger. The young leave the nest before they can well fly. They resemble the old birds, but are a little lighter; they may be easily reared on a paste of bread, egg, and crushed hempseed.

Mr. H. Stephens, in his "Book of the Farm" says, "the Corn Bunting feeds wholly on corn." I am sorry to see such an error in natural history in an otherwise excellent and valuable work; on the contrary, the Bunting feeds almost entirely on insects, as small beetles and their larvæ, earwigs and caterpillars, &c., in the destruction of which they must render much valuable assistance to the cultivator of the soil; and it is only in autumn or winter, when unable to find their natural food, that they are driven by hunger to eat grain, among which, grass seeds and oats are their favourites. In confinement they may be fed on canary seed, oats and millet, with, occasionally, a little hempseed; but, being deprived of their natural insect food, are rather tender. I never knew them to eat any green food in confinement, but if a mealworm or earwig was put in their cage, they devoured it with evident relish.

Knapp has accused this species of unroofing a rick of barley, by drawing out the straws one by one in search of any grain that might be left in the ears; and further in placing these straws regularly round the base of the stack. I do not doubt but that he might have seen the Buntings searching about the stack for food, and here and there a bird might pick up an ear and fly off with it, the straw hanging down; but to suppose that they could draw out the straws, is giving the birds too much sense in the first place, and also assigning to them too much strength—or else that the

stack was not properly thatched; but to imagine that the birds would place the straws regularly round the base of the rick, is, I think, taxing our credulity too far. It reminds me of an account which Mr. Stephens also quotes respecting Wood Pigeons—namely, that they convert their wings into flails, and so thrash the grain before they eat it. Ought they not to carry it first to the barn? Now, probably, this accurate observer whom Mr. S. honours by quoting, had seen some young Pigeons following their parents and flapping their wings after them to be fed, as is their habit. This acute observer, knowing more about flails than Pigeons, actually mistook the Pigeons' wings for flails. His next discovery will, very likely, be that the Pigeons in his neighbourhood have started a limited liability company to thrash the farmers' corn, they to have the grain, and the farmer to get the straw as his share; indeed, birds are become so wise, and observers so credulous, that we need not be surprised at any wonderful story in these advanced days.

But, to return to the Bunting; these birds are considered very excellent eating, and are often mistaken and eaten for the true Ortolan, being of the same tribe. They prefer the open country to the wooded district, and frequent arable and pasture land, where the cock bird may be seen perched on a bush, the top of a thistle, dock, stone, or large clod, and singing his sprightly, but harsh song, *Tick, tick, ferrichter ree-ee-ee-ee*, which is frequently repeated at short intervals in a rather grating key, which, Bechstein says, has caused them to be sometimes called stocking-weavers in Germany. They quiver or shake their wings as they fly, and during the pairing-time the cock often lets his legs hang down in flying from one perch to another, similar to the Butcher Bird.—B. P. BRENT.

(To be continued.)

AYRSHIRE APIARIAN SOCIETY AND MR. TAYLOR.

MY attention has been directed to an article in THE JOURNAL OF HORTICULTURE for April, signed "A RENFREWSHIRE BEE-KEEPER," in which he says "that should Mr. Taylor, before publishing another edition of his standard work, indulge in a tour through this county, making the acquaintance of some of the leading members of the Ayrshire Apiarian Society," &c. In the name of said Society, I beg leave to assure Mr. Taylor that, should he visit Ayrshire, he will receive a hearty welcome, and anything noteworthy in our system of management will be most willingly shown him. Our Show takes place in August (the day is not yet fixed but I will send due notice to this Journal) when we shall be glad to see any apiarians interested in seeing a sample of our work.

Our system is not general over the county of Ayr, but the parishes of Mauchline, Kilmarnock, Kilmaurs, and Stewarton, are the best to see the box system of raising honeycombs.—JAMES LUNGLAND, Chairman, Ayrshire A.P.S., Bee Bank, Kilmarnock.

LIGURIAN BEES IN SCOTLAND.

I AM glad to be able to give you a favourable supplement to the paragraph which appeared in No. 13 of THE JOURNAL OF HORTICULTURE in reference to my Ligurian bees. It is there stated that my hive had swarmed a first time on the 4th of June, a second on the 12th. It also swarmed a third time on the 19th. This third swarm was a very fine one, as it weighed 3 lbs., so that now I have four hives in fine working order, one of which, through the kindness of the manager of this branch of Messrs. Hogg and Wood's Nurseries, has been placed in the nursery ground adjoining the station, where they may be seen at work during the summer. I may state that I have another young Ligurian queen at the head of another hive not yet swarmed; but I also expect a swarm off it in a short time if the weather is favourable, which will be a further accession to my stock.

I regretted to see "B. & W.'s" unsuccessful attempt to introduce the Ligurian queens; their failure, without doubt, was attributable to their being irritated whilst they were in the act of uniting, as I should have serious doubts if a hive would receive a portion of their own bees after a few minutes' separation, if returned to them in the same way, scented with anything offensive, such as tar.

Could you oblige me by letting me know the time a queen

takes to come to maturity, from the egg to her emerging from the cell?—J. S., *Dunse, N. B.*

[A queen bee generally takes sixteen days to arrive at maturity from the time the egg is laid. Climate, however, is not without influence. In California the period is shortened to fourteen days; whilst in this country, towards the end of an unfavourable season, we have known it protracted to nearly twenty days.]

BEE FOOD.

THE communication from your esteemed correspondent, "AN OLD APIARIAN," on the subject of a substitute for the natural food of bees, which appeared in the last Number of THE JOURNAL OF HORTICULTURE, leads me to state my own experience on this subject.

The mixture I administer to my bees is simply lump sugar and water, in the proportion of 6 lbs. of sugar to 4 lbs. of water, boiled for a minute or two. This mixture costs about 3½d. per lb., with sugar at 6d.; or 3¼d. per lb. if a darker quality, at 5½d., be made use of.

Last autumn I gave my bees more than three hundred weight of syrup, made in the above manner, and I have no hesitation in saying that they did quite as well as if fed upon honey. Having repeatedly formed stocks in autumn by driving condemned bees, and carried them safely through the winter upon syrup alone, I can recommend it as an excellent substitute for honey in bee-feeding, whilst it has this advantage over sugared ale, treacle, and such like compounds, that it is a perfectly pure syrup which will never become offensive, or injure the combs in which it is stored.—A DEVONSHIRE BEE-KEEPER.

THE HONEY BEE.

By F. H. MINER.

(Concluded from page 248.)

A QUICK eye, instant decision, rapid action, intelligent assistant, and some experience, are necessary in these cases. These catchers are unnatural, and to be used only in emergencies. If first swarms are four or five rods apart—they are not apt to unite; second swarms are more likely to mix. If a swarm is nearly settled before another starts, they may be secured as follows:—Make some light oblong boxes (as the cluster usually takes this form) of thin stuff, joints 1½-inch apart; convenient handles at the bottom, and a piece of cloth fastened to one edge, to cover the mouth. I sometimes hive five or six swarms from a limb before they stop coming. If there is difference enough in the starting to keep the queens apart, each with a majority of her own bees, a little mixing makes no great difference. The queens are anxious to keep with the swarm, and usually come immediately to the cluster. If another swarm begins to alight, shake them as completely as possible into the box; throw over the cloth, set aside and cover with a sheet. The few remaining bees attract the next swarm, which secure in the same way. If two start at once near enough to be likely to come together, put a catcher over one of them. Look occasionally to see if your boxes all have queens; they may be set near each other till this is ascertained. If any are missing divide the bees between your lightest swarms, always remembering that first swarms coming out with an old queen will not accept a young one. Be very careful not to injure old queens in hiving; better lose six young ones than an old one—you have plenty to supply their place. Never hive two first swarms together; throw down a sheer, set around the edges five or six boxes, and shake the bees in the centre. As they spread out, draw back some of the boxes and shove up others, that each may get an equal amount of bees. If you happen to see a queen go into one remove it a little. If you succeed in getting them apart, divide the bees between them. They may be attacked as they are strangers to part of the bees. To avoid this danger, examine the cluster with the feather end of a quill; secure the queens and introduce them to the bees in cages. When a queen is attacked pour water on the little bunch of bees. A few lessons will cool their combativeness; they are not apt to attack unless the large majority are strangers. When the rush is over, hive your bees and set them on the stands—the sooner the better. If a first swarm loses the queen, set a light swarm with a fertile queen in place of the old hive; cover the old hive and those adjoining with sheets. They will enter the new hive, and having lost their hive as well as their queen in their alarm, they seem to forget her

or lose their combativeness, and accept the new queen. If they could be made to accept an unimpregnated queen it would not be desirable—Mr. Quinby's opinion to the contrary notwithstanding. I disregard all human authority where it comes in conflict with the infallibility of Nature.

First swarms are large, make comb rapidly, and if four or five days should intervene before the queen was impregnated, and two days more before she begins to lay, the hive might be nearly filled with comb and honey, to the exclusion of brood. Most of the old bees come out with the first swarm, and, dying rapidly, render it less valuable. Give them the old queen, or a fertile one—they construct workers' cells three times as fast as they would be vacated in the old hive. She pre-occupies them with brood to recruit the wasting numbers. Feeding this brood employs the bees and prevents their occupying the comb with honey to the exclusion of brood. The combs in the old hive are partly filled with honey and pollen—the rest with eggs and brood in all stages. The bees are young, and it will be three weeks before the part occupied with brood is vacated; some time before this the queen will be fertile.

PROTECTION.—A piece of green babinett to cover the face, so fitted as to be thrown over the head when needed, as all obstructions injure the eye. A bee dress should have a smooth surface. The loss of queens does not occur usually till there are plenty of young ones in after-swarms and old hives.

For cages punch the pith out of a piece of Elder or Ash 4 inches long; cut a slit in the side so narrow that a queen cannot wedge her head in; put a staple in each end of the tube, which must be so small she cannot sting herself. Take a piece of transparent horn, one end to receive the cage, and the other cut square. Where there is more than one in the same swarm, then they may be secured as they appear on the lighting-board, by setting the horn over them; take out the cage, put in another and repeat, or with the feather end of a quill they may be found after lighting, and taken by the wings. Where there is more than one queen in the same swarm, they are allowed to kill each other after hiving. Where different swarms are hived together, each having a preference for their own queen, endeavour to smother the stranger, if their own is present. If a part of the bees belong to a first swarm, and have not a fertile queen, they are apt to leave. If a swarm has lost the queen, introduce one in the cage—the next day liberate her; but I prefer in doubling after-swarms to hive the surplus queen with a few of their own bees, in a honey cap, till they are fertilised. During the alarm that succeeds the loss of a queen, slip them in the chamber; the risk is then over. If you have no queen, set a swarm beside them, raising each hive that the bees may communicate. They hope for a visit from the queen, and continue work till you can furnish one.

UPWARD VENTILATION is now adopted to keep the bees dry. Can we keep an animal organisation—one-fifth of which is water, and which breathes the air that condenses and distributes the rains of summer and floods of spring, so dry it won't freeze? A man walking in the open air is pretty well ventilated, but his eye-lashes and whiskers may be loaded with ice. To keep the frost out, keep the heat in; a hole at the top lets it escape. The vapour created by the functions of life will condense, precipitate and congeal in the presence of cold. Heat carries it off in an imperceptible form. Give them plenty of air. The oxygen maintains the vital fire, and when excluded the coldness of death comes rapidly over them, even in summer. I have just examined some forty hives near me; five holes in the top of each were secured with wire cloth. The bees had stopped nearly all with propolis. Inch holes in the side were also covered—none of these were stopped by the bees; some had been closed with paper—all had holes at the bottom. On examination every hive which had no opening at top or side was dead, nine in number; those that had very little were partly dead. A hole at the bottom does not vitalise the air in cold weather. Last winter the same man closed the sides and bottoms of twelve hives standing in a house made for wintering, leaving openings at the top. Eight of the twelve died. Water is the great element of animal life. They breathe water, drink water, are water, and when burned a few ashes only remain. It is the universal solvent by which food is fitted for the organisation—the purifier which carries off the worn-out parts and maintains almost every function. In very hot or very cold weather, when the air is the driest, and we breathe less, we must drink more. The cold that confines the bee provides for its necessities in the condensed vapour in the lower parts of the hives, advancing or receding according to the temperature. The summer shower does not injure the bees.

It is only as a conductor in connection with the cold that invades our unnatural hives, that it is dangerous.

But I have run the length of my line, and have not found the bottom of the ocean. I suppose the Creator understood the relations and properties of matter, and am satisfied humbly to copy the pattern.

OVERSTOCKING.—There are within three miles of me about five or six hundred swarms, besides forest bees. My own, the largest lot 200, and those nearest them, have not done as well as small lots with less competition. If I had taken away my after-swarms instead of depending on Mr. Langstroth's statements, it would have made a wide difference. I must divide this spring. The difficulty of keeping swarms apart is sufficient reason to limit an apiary to 100 stocks. Feeding is apt to create excitement; all the stocks are soon on the alert, some trying to steal and some to defend. Weak swarms, like poor cattle in the spring, are vexatious and uncertain, but should not be allowed to starve. I prefer feeding sealed honey either at night or in the cellar. The 20th of last May, I had a number of swarms desert their hives, leaving brood. I had fed them carefully till the apple and cherry blossoms were out, and supposed them safe. A little frost and wind intervening caused the mishap. Alas for the flowery days when—

Spring came like a laughing girl,
All decked in glossy green,
Fit for a bridal tour,
In garlands bright and sheen.

The sun, that glorious wooer,
Shone on the Maiden Queen,
Each bud became a flower,
Each flower a fruit was seen.

But now she loiters mournfully,
Like some deserted queen,
Stripped of the gauze and drapery
That rustled in her train.

And where the wild deer bounded free,
Now cattle graze the plain,
Each rising flower is nipped away,
Nature looks bald and tame.

If the winter of my years had not frozen over the dancing streams of hope, I would build an ark for my bees, and taking to the Father of Waters, visit the green slopes and flowery plains of the North in summer, floating down to the sunny glades and orange bowers of the South in winter. The short, light winter, the early swarming, the long gathering season, the unbroken succession of flowers, the fresh range, with the practice of artificial divisions in moveable comb-hives, would make it a lucrative business, while the change of scene might satisfy a gipsy.

WINTERING.—All animal organisations need exercise to quicken the circulation, expel impurities, stimulate the appetite, and renew the body. Bees, therefore, when the air is warm need liberty for action to expel their feces; they eat more, but are better able to endure the vicissitudes of spring. They need pure air; the cellar, therefore, is not a good place, but above all they need heat, and to me it is a choice of evils—heat is life and cold is death. I live on a bleak hill on the naked prairie, where the wild winds revel with a western violence unknown in the forest. Even in the cellar I am losing bees with cold in small divisions, cut off from the cluster by brood-combs on the side and cold corners; all their instincts at fault, in their unnatural home they remain and perish. If the hive was round, the side-combs would be narrow and rounded to correspond with the hive, and the bee could come to the cluster without going further into the cold. I set them out once, usually in January. They should not be put out unless the air is quite warm (the confinement has made them feeble) and sure to continue so two hours at least. It is natural to suppose that disturbance by stimulating appetite would be injurious in a confined state, but I have not found any trouble on this score.—(*Prairie Farmer*.)

CAUSE OF THE DEATH OF A QUEEN BEE.

I also forward you a result—a caution against what is sure to happen when divided colonies (of bees) come to be united, a great row and one dead aspirant. The unfortunate of "INVESTIGATOR" was pierced to the heart; that is not the case with my queen, as an abdominal injury is the cause of death, and this, according to my observation, is the case nine times out of ten. I have often tried but without avail to find out how the sad event is brought about, whether by battle royal, or by loyalty of subjects, though the trumpet notes of defiance issuing from the queens on those occasions induce one to suppose it is

the former; and in that case, as regards mundane affairs and quarrelsome monarchs, it might serve as a good example for them when settling their little differences, seeing that it would save a vast sacrifice of human and innocent life, and as in the case of my bees the community would remain so much the stronger, loyally so.

My last cast came off yesterday, the 27th ult. I united them to a previous cast at 10 P.M., and when I placed the hive on its stand this morning at 3 A.M. the usual fatal catastrophe lay extended upon the cloth to be forwarded to you for scientific observation at your will and pleasure. My bees have now concluded their very good swarming season, for which result I have been waiting in order to continue my papers "How I became an Oxfordshire Bee-keeper."—U. AND O.

SUPERIORITY OF LIGURIAN BEES.

I HAVE refrained from offering an opinion on the merits of Ligurian bees until I had given them such a trial as would put their good qualities to a fair test. Having now had them at work during two seasons, I can confidently pronounce them far superior to the common bee.

I believe the secret of their superiority to consist in the amazing fertility of their queens, which greatly exceeds anything I have ever experienced in the ordinary species; in fact, their fecundity appears almost without limit, and has necessitated the employment of larger hives than I have ever before used.

The following extract from *The Boston Cultivator* shows that the opinions of American apirians coincide in this respect with those of—A DEVONSHIRE BEE-KEEPER:—

"Dr. J. P. Kirtland, of Cleveland, Ohio, in a letter to S. B. Parsons, Esq., of Flushing, Long Island, gives the results of his experience with Italian bees as follows:—

"1st. Their disposition to labour far exceeds that of the common kind. From the earliest dawn of day to the arrival of evening, they are invariably passing in and out of the hive, and rarely suspend their work for winds, heat, or moderate showers, at times when not a solitary individual of the common kind is to be seen. Two hours each day their labours are extended beyond the working-time of the last-named kind.

"2nd. Power of endurance, and especially of resisting the impression of cold, they possess in a marked degree. Since the Buckwheat, Solidagoes, and Asters have flowered, the nights have been remarkably cold in this vicinity. This low temperature has in a great measure suspended the efforts of the common bees, and they have been eating their previously accumulated stores. Not so with the Italians; they have been steadily accumulating honey and bee-bread, and rapidly multiplying their numbers. They seem to be peculiarly adapted to resist the chilly atmosphere and high winds which predominate in autumn on the shores of Lake Erie.

"3rd. Prolificence they equally excel in. Both my full and half-blooded stocks have become numerous and strong in numbers as well as in stores at this late season of the year, when the common kinds have ceased increasing and have become nearly passive.

"4th. Their individual strength is greater, and this is well illustrated in their prompt manner of tossing to a great distance any robber that chances to approach their hive.

"5th. Their beauty of colouring and graceful forms render them an object of interest to every person of taste. My colonies are daily watched and admired by many visitors.

"6th. Of their moral character I cannot speak favourably. If robbing of weaker colonies is going on, these yellow-jackets are sure to be on hand.

"So far as my experience has gone with them, I find every statement in regard to their superiority sustained. They will, no doubt, prove a valuable acquisition to localities of high altitude, and will be peculiarly adapted to the climate of Washington Territory, Oregon, and the mountainous regions of California."

OUR LETTER BOX.

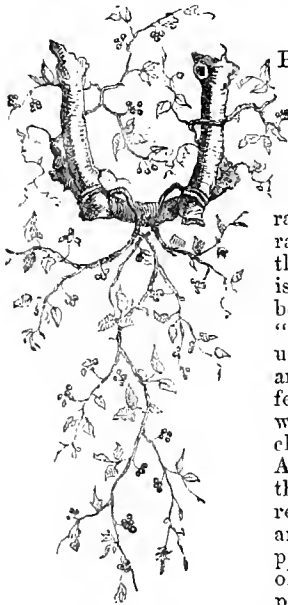
ONE RUN FOR TWO HORSES (*Adelaide B.*).—Your proposal to allow the tenants of each house to run into the farmyard for the half of every day alternately, is a usual and good arrangement. In each house having a separate enclosure, 50 feet by 12 feet, you might keep ten hens and two cocks. The house to supply you with chickens and eggs should be tenanted by ten Cochins, China hens, Buff, or Partidge-coloured, and two Grey Dorking cocks; take away five of the hens every summer, and supply their place with five early Cochins, China pullets, and the cross-breeds from your own yard. You had better get rid of all the hens three years old, and begin with ten pullets.

WEEKLY CALENDAR.

Day of M th	Day of Week.	JULY 16—22, 1861.	WEATHER NEAR LONDON IN 1860.							Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets.			
				deg. deg.	E.		m. h.	m. h.	m. h.		m. s.	
16	Tu	Saponarias.	29.910—29.816	65—50	E.	.14	3 af 4	8 af 8	19 11	8	5 44	197
17	W	Oxalis.	29.862—29.814	75—45	S.W.	—	5 4	7 8	59 11	9	5 49	198
18	Th	Digitalis.	29.827—29.764	75—50	S.W.	.07	6 4	6 8	morn.	10	5 54	199
19	F	Antirrhinum.	29.680—29.636	70—49	S.W.	.01	7 4	5 8	52 0	11	5 58	200
20	S	Sun's declin. 20° 39' N.	29.819—29.779	72—47	S.W.	.10	8 4	4 8	58 1	12	6 2	201
21	Sun	8 SUNDAY AFTER TRINITY.	29.746—29.577	70—47	S.	.26	10 4	2 8	14 3	13	6 5	202
22	M	Latbyrus.	29.771—29.601	70—42	N.W.	.17	11 4	1 8	rises	0	6 7	203

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 74.7° and 51.4° respectively. The greatest heat, 91°, occurred on the 18th in 1859; and the lowest cold, 39°, on the 18th in 1851. During the period 118 days were fine, and on 113 rain fell.

MECHANICS AND MATHEMATICS APPLIED TO GARDENING.



WARDS of forty years are now passed since Captain Williamson—who, having passed much of his life in India, we will suppose had become, like its curries, of a temperament rather warm, and like its rajahs rather despotic—wrote thus of agricultural mechanism, and of those for whose benefit it could be employed. "Almost every implement in use is put together by guess, and without the smallest reference to those principles which should guide mechanics of every description. As to the farmers themselves, their ignorance in all that relates to draught, resistance, and friction, may safely be put on a par with their own obstinacy, and with that sullen pride which characterises the generality of our labourers.

Tell the farmer that his plough is badly formed, and he will answer you, '*It suits my county.*' Tell the labourer that it works ill, and he will answer, '*It's the fault of the land.*'"

Now, though since that was written the manufacture of agricultural implements has very greatly improved, and the possession of the scientific knowledge which Captain Williamson laboured to impart characterises the makers of the machines and implements exhibited annually at our various agricultural shows, yet we cannot observe such a marked increase of knowledge among those who employ those implements as would justify us in believing that they are competent judges of their comparative excellence. Every farmer knows, for instance, when a plough works the land effectively; but if two ploughs work the land equally effectively, we never met with a farmer yet who could tell which did so with the least expenditure of power, or, in other words, which distressed the horses most.

The same observations apply to the manufacture of gardening implements, and to those who use them. Those implements are more various and more correctly formed than in the days when Captain Williamson wrote; but we do not observe that those who employ those implements understand more clearly than they did fifty years since, the readiest modes of ascertaining which require the least expenditure of labour.

No. 16.—VOL. I., NEW SERIES.

As the gardener is generally deficient in a knowledge of the laws of mechanics applicable to his art, so is he too usually without that knowledge of mathematics which would facilitate much of his practice. We once saw this very markedly exemplified in the attempts to cut out three oval beds upon a lawn, each being required to vary accurately in its proportions relatively to the others. The gardeners were fairly beaten, but the schoolmaster of the village being applied to by the owner of the garden, marked out the three beds without hesitation or difficulty.

We think we can give some information that may serve to remove the deficient knowledge at which we have glanced, not, however, intending to give a general treatise either upon mechanics or mathematics, and we will commence with a few notes upon

THE LEVER.

It must be borne in mind that any inflexible bar or rod placed on a prop, called the fulcrum, for the purpose of raising a weight, is a lever. The handle of a wheelbarrow is a lever, and the axle of the wheel is the fulcrum. The weight, or resistance, to be overcome is the body of the barrow and whatever it may contain, and the power by which that resistance is overcome is the hand and bodily weight of the man. In this instance the resistance is between the hand and the fulcrum.

Pruning-shears, pincers, and sugar-nippers of all kinds consist of two levers, the rivet being the fulcrum of each. The fingers or hands are the power, and the shoot pruned, the nail drawn, and the sugar nipped, are the resistances to be overcome. In these levers the fulcrum is between the power and the resistance.

There are other forms and combinations of levers, but the above are those with which the gardener is chiefly concerned, and we will to them confine our illustrations.

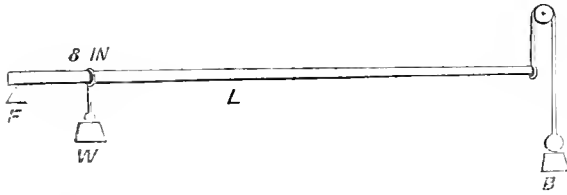
When two men are carrying potted plants upon a handbarrow between them, or when they bear on a pole a tree for transplanting, they employ a lever on the same principle as the wheelbarrow, each man acts as the power in moving the weight, and each man acts as the fulcrum to the other man; the handles of the handbarrow and the pole are the levers; the potted plants and tree are the weights or resistances to be overcome, and they are between the power and the fulcrum.

Now, the force to be obtained by a lever is greatly increased by an increase of its length between the fulcrum and the hand, or power applied, as well as by the nearness of the weight or resistance to the fulcrum. Thus: if 24 lbs. are placed in a wheelbarrow at 8 inches from the axle of the wheel or fulcrum, and the handle of the barrow is 4 feet long, measuring from the fulcrum, then 4 lbs. placed at the extremity of the handle will balance the 24 lbs. But, if the 24 lbs. are placed at 16 inches from the fulcrum, then 8 lbs. are required to

No. 668.—VOL. XXVI., OLD SERIES.

be placed at the extremity of the handle to balance those 24lbs. This is proved in the following manner:—

Fig. 1.



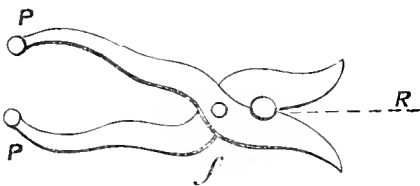
- F The fulcrum.
L The lever, 4 feet long.
W 24 lbs. weight suspended at 8 inches from fulcrum.
B 4 lbs. attached to end of the lever by a string passing over a pulley.

Therefore, in the case of using a pole or handbarrow, if the potted plants or tree weighed 24lbs., and were placed at W, the man at B would bear 20lbs. of that weight, whilst the man at F would only bear 4 lbs.

Captain Williamson simplifies this by observing, "When the weight is central, the burthen will press on the two supporters equally: but if it be removed towards one of them, he will find the pressure upon him to be increased in an exact ratio. If the pole be 5 feet long, and the weight is moved to within 2 feet of him, he will sustain three-fifths of the weight, whilst his fellow bearer will sustain only two-fifths of it: hence, men of unequal strength may easily accommodate any weight, borne on a pole, so as to bring their powers to a par."

The case of the pruning-shears may be best explained by means of a diagram.

Fig. 2.



- P P The lever or handles, where the hand or power is applied.
F The rivet or fulcrum.
R The shoot to be cut, or resistance to be overcome.

As already stated, "the force to be obtained by a lever is greatly increased by an increase of its length between the fulcrum and the hand, or power, applied; as well as by the nearness of the resistance to the fulcrum:" therefore, the greatest cutting-power is obtained by pressing together the handles of the shears with the hand at P, as far as possible from the fulcrum, F, and by having the shoot, or resistance, R, as near as possible to that fulcrum.

The following plain rule is applicable to all cases of leverage:—Multiply the weight or resistance by its distance from the fulcrum; then multiply the power by its distance from the fulcrum; if the products are equal the power will balance the weight or resistance.

For example, as in the case of the wheelbarrow, if 24lbs. be at 8 inches from the fulcrum, these multiplied together are equal to 192; and the lever or handle being 48 inches from the fulcrum, this multiplied by the 4 lbs. are also equal to 192.

(To be continued.)

CONCERNING SOME FERNS.

IN the Kew collection *Pteris argyrea* is labelled as a variety of *P. aspericaulis*. Is this so? *P. tricolor* is pretty obviously a variety of the old plant; but *argyrea* far surpasses both in size and hardness, and the hairs on the upper surface of the midrib are absent or inconspicuous. It is curious that at all events the three variegated Ferns now in vogue are of one genus. A beautifully marked Fern, though not exactly variegated, is *Gonio-*

phlebium appendiculatum; and if you place it against the light, the young semi-transparent frond faintly suggests the effect of a stained Gothic window. — Well, yes! You must be of a rather fanciful temperament to see it.

The rosy tints of some Ferns while growing are a nice relief to the general hue of a fernery, and they suggest a contrast with the habit of the denizens of the arboretum, where the red hue is often the flush of decay. The Ferns more appropriately mount a little gay colour on coming out into society, and then subside into their ancestral uniform—it may be a cold or warm tint, bluish, yellowish, or greyish; but it must be green, trimmed, in a few exceptional cases, with a little gold or silver. A peculiarly dark species is the *Platyloma rotundifolia*, which was mentioned by you some time ago as a Fern that delighted in deep shade. Of course you meant deeper shade than its congeners; but this seems to point to another opposition between Ferns and flowering plants, which grow paler in darkness. Do Ferns ever blanch? or is their colour, like certain seaweeds, independent of their share of sunshine? As to the "golden" species, a classical but non-botanic friend inquired, on reading the label on my *Phlebodium aureum*, if that were the "gold Fern." As the leaf happens to have a tint of green with less than usual yellow in its composition, the title seems undeserved. It was given, perhaps, in reference to the sori, which, however, are not more golden than in many other species. One would put up, though, with unexpressive, or even wrongly expressive, names if they were a little handier to write or talk about; and above all if the set of people who, on the strength of a little Greek and Latin learning, are supposed to be botanists, would be content with making one pair of names for a plant. If they would work out a single fact—one minute atom of information about the external requirements or internal organs of the most insignificant species, "it would be something," as Sterne says of the old man's love for his ass; but their perpetual divisions and distinctions (all done in the dark, for nobody can define a genus, or a species, or a variety), puzzle plain people's heads, and make beautiful objects ridiculous by the absurd and ugly names that we must speak of them by. Taking a precedent from what was suggested in Parliament with reference to architects and public buildings, do you think it would improve our nomenclature if we were to hang a botanist or so? Of real information about exotic Ferns we have little enough. Except that there are gradations of temperature, we give them pretty nearly one kind of food and lodging; although many of them, if they could speak, would be found, like Mr. Stiggins, to have some peculiar vanity. Sims' catalogue, which is a very handy book for Fern growers, omits the localities of the exotic species, because "it would not aid culture unless the elevation at which the plant grows was given also." This is so when only such a vague notion can be given as "Brazil" or "North America," which may include equatorial and temperate regions, to say nothing of the set of climates belonging to a range of mountains; but when a small spot on the map can be given, such as Buenos Ayres or Juan Fernandez, the locality would do much to indicate the cultivation.

I see the Horticulturals award a "commendation" to a new Fern—*Lomaria Fraseri*. This, of course, is due to some special properties of the new-comer: a mere numerical addition to the list of cultivated species would be only an encumbrance.

I see also that in the late shows the *Gleichenias* were a prominent feature. Is this distinction gained by fashion, or novelty, or costliness, or difficulty of culture? Surely (with the exception of *flabellata*) their beauty is of a quaint, stiff, skeleton-like character. I fancy a wire-worker would turn out a very good imitation of some of them.

And finally, to come to a practical question. Some of my *Adiantums* throw up fine promising young stems, which rise well out of the soil, and look clear-complexioned and crisp as usual; a day or two after, the head of the new frond discolours, drops of brownish liquor hang about it, it withers and drops. My plants are, as I believe, well drained. What is their complaint? and, as cure is out of the question, how is the disease to be prevented?—T.

[As to *Pteris argyrea* and *P. tricolor* authorities differ. Our own view is that *tricolor* is really a variety of *aspericaulis* (itself included by the "lumpers" in *P. quadriaurita*); while *argyrea* has nothing to do with it. The limitation of species is one of the vexed questions of botanists. Some regard all the foregoing as being included under *quadriaurita*, which is an extreme view. They all belong to one group, certainly, and are closely allied,

no doubt; but we cannot go so far as to regard them as one species. We have never tried to blanch Ferns, but imagine they would become white were light totally excluded. The name "aureum" given by Linnæus to the Polypodium, now *Phlebodium aureum*, refers, there can be no doubt, to the very large and massive clusters of golden spore-cases—much larger and more conspicuous than in any other species then known. You must remember that while nomenclature is fixed (that is the rule) discovery is progressive, and the most golden of olden Ferns may become equalled or surpassed by more recently discovered plants; but in such cases the name cannot be transferred. That would increase tenfold your difficulty in mastering the names.

Well, now, as to the hard names and the botanists. Those who follow the science know that the governing principle is necessary and sound; some individuals overdo the matter, perhaps, but this is a free age and a free country, and the study devoted to the subject by those persons does not lead them to think they commit any excess. Names are the mere alphabet of science, enabling its votaries to hold communications with each other. If (because you cannot do without them) you use the names botanists employ, you may have the English privilege of grumbling if you please, but you must still use them, or invent some others, which would probably be ten times worse, because they would be less definite.

Lomaria Fraseri has the special properties of being very distinct and really handsome, which are the grounds on which it was commended.

We cannot agree with you about *Gleichenias*, which are amongst the most elegant of Ferns—albeit, with a certain quaintness. True, a wire-worker might imitate them, but then other artists might equally imitate any other set of Ferns, so that this is no disparagement.

We cannot tell what ails your *Adiantums*; but if the soil is in a healthy state we should think they have too much atmospheric humidity, and that in too stagnant a state. It may be, however, that some specific disease has attacked them.—†]

ROYAL HORTICULTURAL SOCIETY.

FIRST GRAND ROSE SHOW.—JULY 10TH.

THE great extent to which the culture of this favourite flower—the very queen of all flowers—has been carried, has been amply borne witness to by the result of the two rival exhibitions at the Crystal Palace on the 6th, and this at Kensington Gore to-day. I use the term "rival" in no invidious sense, certainly not in that of opposition; and rivalry, if fair and open, must ever be a benefit. Although held within four days of one another, each was a complete success. A bright day and the numerous attractions of the place brought its 13,000 visitors to the Crystal Palace; while a day equally fair (breaking through the old Chiswick charter), gave its gay and most brilliant assemblage to Kensington Gore. And then what a boon to exhibitors!—in both places the prizes were liberal both in number and value, the arrangements all that could be desired. And although an unfavourable season with its wet and frost had driven several able competitors from the field, still an immense number of blooms was exhibited; and if we succeed in repairing our losses, and if Roses on their own roots are extensively grown, the fairest aspirations of the "Géant" Secretary of the National Rose Show will ere long be realised—the whole conservatory at Kensington Gore filled with the queen of flowers, and Her Gracious Majesty coming to see her fragrant rival.

Having already given my idea of the Crystal Palace Show, and knowing that "D. B." has been "taking notes," I shall leave the general features of the Exhibition to him, and, as florist mad, confine my notes to the Roses, viewed not so much as a decorative flower as in its individual character—how far they merit the approval of the florist, and come up to the conventional (!) idea that he carries in his mind. Viewed as a whole, one may say, I think, that the entries were more numerous at the Crystal Palace, but the flowers were fresher at Kensington; that the nurserymen's class was better represented at the latter, and the amateurs' at the former; and that a larger proportion of newer flowers was to be found amongst the trees on the 10th than on the 6th.

It will be seen on reference to the prize list that the same growers in a large number of cases exhibited at both Shows, though their positions were in several instances reversed. The

new Roses, as usual, excited a good deal of attention, and several boxes of them were shown.

Messrs. Fraser, of Lea Bridge Road, and Mr. B. F. Cant, of Colchester, took equal first. The flowers were—from the former gentleman, Abdel Kader, very dark, General Washington, a fine well-built flower; Duc de Cazes, dark; Madame Furtado; Princesse Mathilde, a very full and fine flower. These are of 1861. Madame Pauline Villot; Madame Charles Crapelet, a lovely flower, again shown in great beauty, not very full; Le Sénateur Vaisse, I spoke of this as a double Général Jacqueminot, but it is really a perpetual Paul Ricaut; Victor Verdier, and Mademoiselle Eugénie Verdier; Louis XIV., a very dark and fine Rose. From Mr. Cant, La Boule d'Or, Tea, a very fine and deep-coloured flower, deeper than Triomphe des Rennes, N.; Eugène Appert; Madame Charles Crapelet; Victor Verdier; Rubens, Tea; Gloire de Santenay, a very fine Rose; Louis XIV.; Madame Boll; Victor Emmanuel, B.; Duc de Magenta, Tea; Buffon, and General Forey.

Mr. Standish was second (his flowers, though very fresh and even newer in kinds, were small), with *Reynolds Hôle, again shown in good condition, a most lovely pink, and very clear and bright; *Marguerite Appert, blush white; Eugène Appert; Madam Standish: Triomphe d'Amiens, crimson, very beautifully striped and dashed with deeper crimson shade; André Desportes; Madame Furtado; *John Standish; *Grégoire Bourdillon, a very fine rich Rose; *Comte de Falloux, good; and Reine des Violettes. Those marked thus * are in Mr. Standish's hands.

Mr. Keynes was third with Louis XIV., Madame Furtado, Victor Verdier, Triomphe de Lyon (dark but dull), Vainqueur de Solferino, Sénateur Vaisse, Mademoiselle Bonnaire, Eugène Appert, Madame Eugénie Verdier, Madame Mieliez, Madame Pauline Villot, and Triomphe d'Amiens. Thus Madame Furtado, Sénateur Vaisse, Eugène Appert, and others are evidently holding their ground; but I hope shortly to give more detailed accounts of the new Roses when I have further opportunities of testing them.

Amateurs exhibited in 48, 24, 18, and 12. Mr. Hedge, of Colchester, taking double-first honours; Mr. Corp, of Salisbury, one; and the Rev. Mr. Radclyffe, so well known to Rose growers by his writings, another.

In 48's Mr. Hedge was first. His flowers were—La Fontaine, Bizarre Martré, Charles Duval, Madame de Cambacères, Juno, Jules Margottin, Mathurin Regnier, La Ville de St. Denis, Général Jacqueminot, Madame Vidot, Madame Stoltz, Duc de Trevis, Coup d'Hébé, Narcisse, Souvenir de Leveson Gower, Leo X., Triomphe de Paris, Anna Alexieff, Gloire de Dijon, Baronne Prevost, Shakspeare, Madame Knorr, Madam Hardy, Comtesse de Chabillant, Joan of Arc, Rubens, Oridamme de St. Louis, Paul Ricaut, Charles Lawson, Victor Verdier, Adolphe Boussange, Princesse Hélène, Adèle Prevost, Baronne Hallez, Vignerol, and Cynthée. Duplicates being allowed in this class, several of the above flowers appeared twice over.

Miss Crawshaw, of Caversham, was second, Mr. John Hollingworth third, and J. Tritton, Esq., fourth.

In groups of 24, Mr. Corp took first prize with a fine stand containing La Fontaine, Madame Knorr, Géant des Batailles, Gloire de Dijon, Jules Margottin, Juno, Souvenir de Leveson Gower, Augusté Mie, Général Jacqueminot, Madame Mieliez, Pauline Lanzeur, Victor Verdier, Mathurin Regnier, Gloire de Vitry, Madame de Cambacères, Boule de Nanteuil, William Jesse, Général Castellane, Madame Vidot, Prince Léon, La Volupté, and Lord Palmerston (ex.).

Mr. Hedge was second, Mr. Worthington and Viscount Maynard equal third, and Mr. Mercer fourth.

In groups of 18, the first prize was awarded to the Rev. W. F. Radclyffe, of Rushton, near Blandford, Dorset, for Eugène Appert, Paul Duprez (a fine bloom), Gloire de Dijon, Sir John Franklin (an extra fine bloom), La Ville de St. Denis, Triomphe des Rennes, Gloire de Santenay, Souvenir de la Reine de l'Angleterre, Géant des Batailles, Louis XIV., Lord Raglan, Mrs. Elliott, Comtesse de Chabillant, William Tell, Solferino, Général Jacqueminot, and Louis XIV.

Mr. Moore, of Woking, Surrey, second, Mr. Hedge third, and Mr. Tritton fourth.

In groups of 12, Mr. Hedge and Mr. Corp were equal first. The flowers in Mr. Hedge's box were Gloire de Vitry, Souvenir de Leveson Gower, Juno, Pauline Lanzeur, Victoria, Gloire de Dijon, Général Jacqueminot, Comtesse de Chabillant, Evêque de Nîmes, Vignerol, Madame Knorr, and Lord Raglan.

Mr. Helyar was second, Mr. Tritton third, and Mr. Child, of Little Eaton, fourth.

The contest amongst nurserymen was very sharp indeed; and after a very severe and close scrutiny on the part of the Judges, ended in Hertfordshire being put out of the field, and the honours being carried off by more distant growers. Some of the blooms in these stands were very fine considering the season; and some indeed would have been fine in any season, and would have satisfied the most fastidious taste.

In 48 varieties Mr. Cranston, of Hereford, was first with Mrs. Rivers, Duc d'Orleans, Lælia, M. Jongneux, Sénateur Vaisse, General Washington, Anna Alexieff, M. Vigneron, Gloire de Dijon, Madame Falcot, Madame Hector Jacquin, Mademoiselle Bonnaire, Louis XIV., Reine Mathilde, Léon des Combats, Louis Odier, Anna de Diesbach, Alexandrine Bachmetoff, Sir Joseph Paxton, Prairie de Terre Noire, Comtesse de Chabillant, Souvenir de la Reine de l'Angleterre, Madame de Cambacères, Oriflamme de St. Louis, Madame Knorr, Acidale, Prince Léon, Princesse Mathilde, Charles Lawson, Général Jacqueminot, Madame Bell, Coquerelle, Souvenir de Montecau, Common Moss, Marie Portemir, Louis Chaix, Reine des Violettes, Duchess of Norfolk, and Prince Imperial.

Mr. B. F. Cant, of Colchester, was second, and Mr. Keynes third. Extra, Mr. Francis, Mr. Hollamby, Messrs. Paul & Son, and C. Turner.

In the large class of 96 varieties, Mr. Mitchell, of Piltown Nurseries, Sussex, was first; Mr. Keynes, of Salisbury, second; and Mr. Hollamby, of Tunbridge Wells, third; Messrs. Paul and Son fourth; and Mr. W. Paul extra.

In 24, three trusses of each, Mr. Keynes was the winner, with some very fine blooms of the following:—Victor Verdier, Madame Vidot, Triomphe des Beaux Arts, Gloire de Dijon, Madame Pauline Villot, Anna Alexieff, Virginal, La Ville de St. Denis, Lord Raglan, Duchesse de Cambacères, Mathurin Regnier, Eugène Appert, Souvenir de la Malmaison, Général Jacqueminot, Madame Mieliez, Dr. Bretonneau, Triomphe de Paris, Jules Margottin, Evêque de Nîmes, Prince Léon, Comtesse de Chabillant, Madam Rivers, and Madame Knorr.

J. & J. Fraser were second; Mr. Cranston third; and Mr. Laing, of Twickenham, fourth; Mr. Cattell sixth; and Mr. Cant extra.

In 24 single blooms, Mr. J. Keynes, of Salisbury, was first, Mr. Charles Turner of Slough, second. Mr. Keynes' collection comprised Boule de Nanteuil, Evêque de Nîmes, Souvenir de Malmaison, La Fontaine, a large, fine, showy Rose; Gloire de Dijon, Victor Verdier, Juno, Prince Léon, Mathurin Regnier, Comtesse de Chabillant, Gloire de Vitry, Virginal, Madame Hector Jacquin, Madame Vigeron, Jules Margottin, Madam Rivers, Madame Knorr, Dr. Bretonneau, Alexandrine Bachmetoff, and Queen of Denmark. Mr. Turner's collection, contained Comtesse de Chabillant, Louis XIV., Anna Alexieff, Virginal, Leveson Gower, Augusté Mie, Léon des Combats, Viscomtesse de Cazes, Baronne Prevost, Duke of Cambridge, Sénateur Vaisse, Victor Verdier, Pauline Lanzezeur, Madame Donage, Jules Margottin, Gloire de Dijon, Duchess of Norfolk, Comte de Paris, Eugène Appert, General Simpson, Mademoiselle Therese Appert, Général Jacqueminot, Plus IX., and Gloire de Vitry.

Moss Roses were shown in two collections by Messrs. Paul and Son and Mr. Hollamby—the former was placed first, with a nice collection of most of the kinds in cultivation.

It will be seen by referring to the lists thus given how very large a proportion of the flowers shown are Hybrid Perpetuals. This one was hardly prepared to expect. Death had been so much more busy amongst them than amongst the summer Roses that I thought the latter would come out more strongly. It seems, however, that they are, generally speaking, a doomed race. Some few varieties will maintain their ground, but year by year we seem to be getting more and more into the two classes of H. P.'s and Teas. Bourbons are rarely shown, and so indeed are Noisettes.

Amongst Miscellaneous Objects there were exhibited collections of fine-foliated and ornamental plants from Messrs. Lee, of Hammersmith, and Messrs. Veitch, of Chelsea and Exeter; several very large boxes of cut Roses by Messrs. Hollamby, Veitch, Standish, Mitchell, and Radelyffe; Phloxes by Paul and Son; Verbenas, Proteas, and Carnations, by Mr. C. Turner, of Slough. The *Verbenas* were St. Margaret, a very old but useful kind, Grand Eastern, very large, Bellona, Madame Herman Steiger, Firefly, Lady Middleton, Magnificent, Zampa, Anglaise,

Princess Mary of Cambridge, Garibaldi, and Mary. The same grower also exhibited well grown and excellently bloomed plants of the following *new Pelargoniums*:—Tradescendant, Ariel, Leviathan, Beadsman, Lord Clyde, Rembrandt, Norma, Bacchus, and Mars.

Mr. Standish, of Bagshot, sent his unique collection of variegated hardy plants from Japan; and Mr. Leach some beautifully bloomed plants of *Disa grandiflora*, of which Mr. Beaton has justly said so much. It is, without doubt, one of the finest Orchideous plants grown; and as it is a native of Table Mountain, Cape of Good Hope, will belong to the hardy greenhouse.

Mr. Bull sent a collection of Petunias, single and double; and Messrs. Dobson & Peares had some tables arranged with the new glass vases for dinner decoration, after the style of Mr. March's first-prize group. They were very elegant, and appeared as if they would be reasonable in price.

On the whole the Council have cause to be amply satisfied with their arrangements, and Mr. Eyles with the manner in which his zeal in entering for the benefit of the gardening world, as well as for the satisfaction of the public, has been rewarded; and, doubtless, another year will still further meet the wishes of all parties. In the great world of London there is room enough for all the societies and their exhibitions, and the greater the number the greater the encouragement to both amateurs and nurserymen to carry out the cultivation of the various objects for which prizes are offered.—D., Deal.

ANOTHER grand Show and a great gathering of the noblesse of the land to record in one week is a luxury which seldom falls to one's lot in hot weather. If I had been with the fairies for the last twenty years, or dreaming in fairyland during that period, and had "just come to myself" on Her Majesty's last birthday, and got into the midst of the crowd at South Kensington on that afternoon, I think I could hardly make out the difference in the company from the grand gatherings at Chiswick twenty years back, save in the fashion in ladies' dresses. All the rest seemed the same display over again—the same features, the same free and easy movements, the same grouping of parties, the same rush to the bands, the same indifference to flowers after four o'clock, and the same ways of cooling by icy linings and self-ventilating garments.

On the other hand, or rather behind all this, you met another series of self-same things—men who never incline but to conquer with the same plants and cut flowers as were at the Crystal Palace the Saturday before; the same prizes, the same judges to award them, the same numbers from twelves to eight times twelve cut Roses, the same winners, the same losers, the same boxes, the same moss and kinds of Roses; and a few, but very few, of the very specimens on which I have descanted in another column. Louis XIV., Madame Furtado, and Sénateur Vaisse, were heel and toe with Gloire de Santenay, Madame Charles Crapelet, and Comte de Falloux; while Triomphe d'Amiens, Gregoire Bourdillon, a fac-simile of Géant des Batailles, said to be double its size, and four times its strength of limb and joint, and which will be the ladies' favourite Rose ultimately—Reynolds Hole, a real cherry-cheek Rose, but not a real triumph or a trump for florists. No matter, that is the Rose, you can mark it among fifty sorts at 500 yards distance. John Standish is one of the best and strongest very late bloomers in the autumn; and Madam Standish was quite another lady from what I said of her at the Crystal Palace. Blondin must have made her look pale there, no doubt; but here in her clement she was a bright rosy pink, and, what is better still, she can climb a pole, and go across a tight rope just as well as Blondin did, and keeps to her perpetually all the while. General Washington is a large Rose, and rather new in tint of colour. Comte de Falloux is said to be the best pot-Rose grown. Alphonse de Lamartine was the best-shaped Rose there, according to my eye, and the nearest in looks to Comtesse de Chabillant of all the Roses there, yet I never saw it recommended anywhere. It is a bad grower; is that caused by the stock? Gloire de Rosamene never did any good on a stock yet; but none is more free on its own roots. Just try Alphonse de Lamartine on its own roots and let us know. My word for it there is no more lady-like Rose in the catalogue. As shown at South Kensington it was a perfect love of a Rose, and much more regular in the dress than the Comtesse de Chabillant. Madame Boll was more perfect than on Saturday, and is up to a first-rater. Victor Verdier the same way, and a fine, strong, pillar Rose. One-half the world

do not know yet about the goodness of *Triomphe des Rennes*, which came out just after the war in the Crimea was over. It is a beautiful pale yellow Noisette, which every one who wants a thorough good climbing Rose ought to have. It must hold the same place among Noisettes as *Gloire de Dijon* has obtained and well deserves among the Teas. But we must not overlook *Céline Forestier*, the newest yellow Noisette, a very fine thing. Duc de Magenta, a very fine light Tea Rose; and Victor Emmanuel, a most beautiful and very dark Bourbon Rose; must have been named by some clever Frenchman as a pun on two of the heroes who cleared the finest valley in Europe for the "unity of Italy," without, altogether, intending it at the time, and you may explain the pun according to your own view of that "unity of expression;" but let me explain the first victory of the hon. member for Salisbury within the "inner quadrangle," without prejudice to those of the quadrilateral of the Ticino, or the Comice de Seine et Marne, and the rest of the Bourbons.

The way Mr. Keynes arranged his Roses, beginning at the highest grade was—*Général Jacqueminot*, *Madame Pauline Villot* (a first-class, new, deep-coloured Rose), *Lord Raglan*, *Léon des Combats*, *Triomphe des Beaux Arts*, *Duchess of Norfolk*, *Louis XIV.*, *Ambroise Verschaffelt*, *Stephanie Beaumarnais* (a quadrangular flower this time), *Triomphe de l'Exposition*, *Louis Chaix*, *Géant des Batailles*, *Pio Nono*, *Glory of France*, *Gloire de Lyons*, *Senateur Vaisse* (his best in this group), *Petit Pierre*, *Empereur de Maroc*, *Ornement des Jardins*, *General Washington* (quite new), *Paul Duprez* (very fine), *Marie Portiner*, *Evéque du Nimes*, *Jules Margottin*, *Cardinal Patrizzi*, *François Premier*, *Boule de Nanteuil*, *Général Castellane* (very fine colour), *Eugène Appert*, *Dr. Bretonneau*, *Prince Léon* (extra fine), *Gustave Govaux* (peculiar), *Victor Verdier* and *Gloire de Vitry* (an immense size). I would plant all these just as they stand for one colour of various tints, and the following outside of them all round, supposing it were a circle—*Madame Vigeron*, *Juno*, *Joan of Arc*, *Mathurin Regnier*, *Beauté de Roygheim*, *Mdlle. Therese Appert* (a splendid miss in a loose dress), *Virginal* (very fine, but not the finest white H.P.), *Céline Forestier* (you see this is different planting from that in another column for variety), *Louis Odier*, *Monsieur de Montigny*, *Madame Masson*, *La Ville de St. Denis* (large), *La Fontaine* (a Camellia tint), *Reine des Fleurs*, *Devoniensis*, *Imperatrice Eugénie*, this is my favourite white H.P., but there is more pudibundus in the centre than in that of *Virginal*; *Triomphe des Rennes* (afore-said, though not a match to *Devoniensis* on the off-side of virgin purity, I must get it in as it was there), *Alphonse de Lamarline* (most charming colour, size, and shape), *Comte de Nanteuil*, *Madame Phelip* (a true carnea colour), *Charles Duval*, *Alexandrine Bachmetoff* (fine), *Duchesse d'Orleans*, *Comte de Plater* (all but white. What is it?), *Charles Lawson*, *Anna Alexielf*, *Louis Peromy* (should have been *Louis Pæonyflowered*), *Souvenir de la Malmaison* (not so fine as mine on its own roots), *Queen of Denmark*, *Lady Stuart*, *Lord Palmerston* (very good), *La Reine*, *Aélide*, *Madame Vidot*, *Madame Hector Jacquin* (certainly out of *La Reine*), *Madame Knorr* (large, flat, fat, and fleshy, but as sweet as the old Cabbage Rose), and the beautiful and very lovely *Comtesse de Chabillant*, and it is best to stop at a great beauty like her Countesship.

That was a collection, and I have selections from Messrs. Mitchell, Hollamby, Paul, Turner, Cattell, Cant, Fraser, Laing, and Cranston, but they will keep.

There was a tie between the Messrs. Fraser and Mr. Cant for new Roses, and both were best and had best prizes. All the new Roses were very fresh-looking early in the day; but the conservatory must have been too hot, for all the Roses went in the afternoon into the present fashion of loose flowing robes, which did not become them nearly so well as their morning dresses. The best new Roses in Messrs. Fraser's were—*Senateur Vaisse*, *Madame Furtado*, *General Washington*, and *Louis XIV.*, *Abdel Kader*, *Princesse Mathilde*, and *Duc de Cazes* (three dark kinds), and *Mademoiselle Pauline Villot*, a deep red, finely-cupped Rose.

The best in Mr. Cant's collection were—*Madame Craplet*, *Louis XIV.*, *La Boule d'Or* (a Tea), then *Madame Boll*, *Général Foray*, *Victor Emmanuel* (dark), and *Duc de Magenta* (a light Tea). Mr. Standish second, with his *Reynolds Hole*, *André Desporte*, *Madame Furtado*, *Marguerite Appert* (after *Madam Rivers*), *John Standish* (strong, large, dark), *Comte de Falloux* (afore-said and fiery red), *Eugène Appert*, *Baron Gonella*, *Gregoire Bourdillon* (afore-said also), *Triomphe d'Aiens*, *Madam Standish* (bright pinky blush), and *André Desporte* (as above).

With these we finish for the present to say that the large conservatory was "furnished" by such good wishers to the good cause in which we are all engaged as the Messrs. Veitch, Fraser, Henderson, of Pine Apple Place, Turner, Bull, Smith, Gainer, and Cranston.

C. Leach, Esq., King's Road, Clapham Park, sent three large pan pots of his glorious *Disa grandiflora*, the very finest terrestrial Orchid in the world, and there is none in the air to compare it with. Moreover it was in full perfection as it was never seen before in Europe. But who can describe it? I was most thoroughly beaten thirty years back in all the attempts I made at growing that plant. Sir Joseph Paxton could tell as much, and several other heads equally sound were defeated in the same struggle; and no one could, or did, grow *Disa grandiflora* in England, till Mr. Leach spent large sums of money in proving it at last to be of easier management than an herbaceous *Calceolaria* or a seedling *Cineraria*.

It requires the very same kind of treatment as we have always advised for *Tritonia aurea* and which so few followed out. Among all the bulbous-looking plants in cultivation, there are no two of them so much alike in their constitution and in their very peculiar habit of dying down yearly but never going to rest. Before the growth of this year dies back, that for next year is up and doing, and they both spawn very much at the roots; both are very thirsty plants, and both resent and sulk at the least attempt at forcing them or submitting them to one extra degree of heat more than is necessary to keep them from the frost. When geothermal cultivation comes in fashion, *Disa grandiflora* and *Tritonia aurea* will be seen in bog marshes out of doors the year round, with a glass case over them all the winter.

D. BEARON.

THE PRIZE LIST.

CLASS I.—96 Varieties, one truss of each. (Nurserymen).—First, J. Mitchell, Piltown Nurseries, Maresfield, Sussex. Second, J. Keynes, Salisbury. Third, E. Hollamby, Tunbridge Wells. Fourth, Messrs. Paul and Son, Old Cheshunt Nurseries, Herts. Extra, W. Paul, Waltham Cross.

CLASS II.—48 Varieties, one truss of each. (Nurserymen).—First, J. Cranston, King's Acre Nurseries, near Hereford. Second, R. R. Cant, Colchester. Third, J. Keynes, Salisbury. Fourth, R. Laing, Twickenham Nurseries, S.W. Extra, E. P. Francis, Hertford; E. Hollamby, Tunbridge Wells; Messrs. Paul & Son, Old Cheshunt Nurseries, Herts; C. Turner, Royal Nurseries, Slough.

CLASS III.—24 Varieties, three trusses of each. (Nurserymen).—First, J. Keynes, Salisbury. Second, Messrs. J. & J. Fraser, Lea Bridge Road, Essex. Third, R. Laing, Twickenham Nurseries, S.W. Fourth, J. Cattell, Westerham, Kent. Extra, B. R. Cant, Colchester.

CLASS IV.—24 Varieties, one truss of each. (Nurserymen).—First, J. Keynes, Salisbury. Second, C. Turner, Royal Nurseries, Slough. Third, J. Cattell, Westerham. Fourth, B. R. Cant, Colchester.

CLASS V.—48 Varieties, one truss of each. (Amateurs).—First, J. T. Hedge, Reed Hall, Colchester. Second, Miss L. Crawshaw, Caversham Park, Reading. Third, J. Hollingworth, Maidstone. Fourth, G. T. Brush, gardener to J. Tritton, Esq., Norwood.

CLASS VI.—24 Varieties, one truss of each (Amateurs).—First, W. Corp, Milford, Salisbury. Second, J. T. Hedge, Reed Hall, Colchester. Third, A. Moffatt, gardener to Viscount Maynard, Dunmow, Essex. Extra, equal third, — Worthington, Caversham Priory, near Reading. Fourth, W. Mercer, F.R.H.S., Grove House, Staplehurst.

CLASS VII.—18 Varieties, one truss of each (Amateurs).—First, Rev. W. F. Radclyffe, Rushton Rectory, Blandford. Second, E. Moore, Horsell, near Woking, Surrey. Third, J. T. Hedge, Reed Hall, Colchester. Fourth, G. T. Brush, gardener to J. Tritton, Esq., Norwood.

CLASS VIII.—12 Varieties, one truss of each (Amateurs).—First, J. T. Hedge, Reed Hall, Colchester. Equal, W. Corp, Milford, Salisbury. Second, Rev. H. Helyar, Pendomer, Yeovil. Third, G. T. Brush, gardener to J. Tritton, Esq., Norwood. Fourth, Rev. Mr. Child, Little Easton, Dunmow, Essex. Equal, E. Moore, Horsell, near Woking, Surrey.

CLASS X.—59 Roses, 12 Varieties, in 8-inch pots. (Open).—Second, C. Turner, Royal Nurseries, Slough.

CLASS XII.—12 New Roses of 1860-1 (single trusses), distinct. (Open).—First, Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, Leyton. Equal, B. R. Cant, Nurseryman, Colchester. Second, J. Standish, Royal Nurseries, Slough. Third, John Keynes, Nurseryman, Salisbury.

CLASS XIII.—Collection of Moss Roses, single trusses. (Open).—First, Messrs. Paul & Son, Old Cheshunt Nurseries, Herts. Second, E. Hollamby, Nurseryman, Tunbridge Wells.

CLASS XVI.—Miscellaneous.—Extra, J. Veitch & Son, Exeter and Chelsea; J. Mitchell, Piltown Nursery, Maresfield, Sussex; J. Standish, Royal Nurseries, Bagshot; E. Hollamby, Nurseryman, Tunbridge Wells. Plants of *Disa grandiflora* were again exhibited in fine condition by J. Leach, Esq., King's Road, Clapham Park. Groups of miscellaneous stove and greenhouse plants were also exhibited by Messrs. Veitch & Son, Royal Exotic Nursery, Chelsea (the centre group of Ornamental Plants in Japan and China Vases); J. Standish, Royal Nurseries, Bagshot (Stove and Greenhouse plants); Messrs. Lee, Vineyard Nurseries, Hammersmith (Stove and Greenhouse plants); Messrs. A. Heederson and Co., Pine Apple Place, Edgware Road (Stove and Greenhouse plants); Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road (Stove and Greenhouse plants); W. Bull, F.R.H.S., King's Road, Chelsea (Stove and Greenhouse plants); C. Turner, Royal Nursery,

Slough (groups of Geraniums and Fuchsias, and stands of Verbenas and Picoetes); Thomas Gaines, Battersea (groups of Pelargoniums, &c.); Messrs. Dobson & Pearce, 19, St. James' Street (two sets of Dinner Table Decorations.)

CULTURE OF THE GRAPE VINE.

(Continued from page 277.)

CULTIVATION IN A GREENHOUSE.

THE kinds best adapted for a greenhouse are Black Hamburgh, Lady Down's, a Grape that keeps well, West's St. Peter's, Royal Muscadine, Black Prince, and Dutch Sweetwater. More kinds might be tried, but the above are good croppers and sure to answer.

PLANTING.—The best season is March, just before the buds break.

PRUNING.—The best mode of pruning for a greenhouse is undoubtedly the spur system; and for this reason, that the foliage is less in quantity, and, therefore, does not shade so much the plants that are in the house than when the single-rod system is adopted.

The *Pruning in Summer* consists in stopping the laterals at the third or fourth joint, and, when the side eyes burst, to stop these again and again throughout the growing season. Every fruit-bearing shoot should be stopped at the second joint above the bunch. When the fruit begins to colour, the first-made laterals should be cut clean off, in order to give more light to the leaves and fruit.

Autumn Pruning.—The Vines in autumn may be half-pruned by cutting off all the laterals in order to ripen the wood and fill the buds with fruit-bearing sap. As the leaves turn yellow they should be removed.

Winter Pruning.—This may be done in any of the winter months after the fruit is all gathered and the leaves all fallen off. At that season the greenhouse plants will all be housed. I always found it more convenient to prune the Vines by loosening them from the rafters in succession, bringing each one down into the walk or path, commencing at one end, it is no matter which, pruning each side shoot to one eye as directed before, and when that Vine was pruned, clearing away the loose bark and applying a paint made of water thickened with sulphur and clay. Use a softish brush and see that every part is covered with the sulphur. This mixture is a great preventive, if not a cure, for mildew, and destroys scale and red spider. Then tie the Vines down to the front in a bundle. In that position they may remain till the buds begin to break. By being thus trained horizontally at the lowest part, and consequently the coolest part of the house, every bud will be in an equal temperature, and will all receive an equal amount of stimulating sap: hence the lower part of the rafter will be as well furnished with fruit as the highest, and the berries will swell almost equally as fine as those on the higher part of the house.

Spring Management.—I have often allowed them to remain in this horizontal position till I could stop the laterals, but when I did so I was obliged to be very careful of the young shoots, for in their young state they are easily slipped off at the base. There is, however, a great convenience in doing this work when the Vines are so handy and easily examined. As soon as one Vine was operated upon—that is, the superfluous shoots rubbed off, the fruit-bearing spurs stopped, and, if long enough, tied slightly to the main stem—that Vine was tied up to its proper rafter, and the next taken in hand, and the same operations gone through till every Vine was done. It requires at least two persons to do this; one to hold the Vine, and the other (the more experienced hand, of course) to thin out the shoots and stop those that are left. In lofty greenhouses crowded with plants, this spring dressing when the Vines are tied up to the rafters before it is done is a very difficult and troublesome affair. I therefore recommend the leaving them tied down to the front till they have made such a growth as will enable the cultivator to give them their first dressing so conveniently. With moderate care he will accomplish this safely, and certainly better and more correctly.

Summer Management.—This consists in regularly stopping the laterals and keeping them tied in neatly to the wires. Speaking of wires reminds me that I have not yet described them. There should be three—one in the centre to tie the main stem to, and one on each side of it to tie the laterals to. Each wire should be about 9 inches from the glass, and 6 inches from wire to

wire. To keep them in position, there should be strong iron pins, sharp at one end, or made with a screw, and an eye at the other end, the wires run through those eyes, and they keep the wires in their proper place. If the wire is pretty strong, the pins will do if placed 6 feet apart. Thus trained, when the Vines are in full bearing all their length, the bunches hang in two straight rows, and are very ornamental. The laterals should not be trained at right angles, but rather slanting upwards. If the Vines are very fruitful I would never allow more than one bunch to a shoot. The spurs should be as nearly as possible a foot apart, and at equal distances. When the Vines are in bloom, the air of the house should be moderately dry. In general, the air should be more moist during the night than during the day. Alternate moisture and dryness will cause the anther coverings to contract and expand, and eventually to crack and open when the pollen is ripe and ready to be shed upon the stigma. If all this has gone on properly, the berries will set freely and will soon begin to swell. Then is the time to commence thinning them—an operation that must not be neglected. Thin freely, and you will have larger berries, but handle the berries that are left as little as possible. Most of the kinds proper for a greenhouse have bunches with large shoulders. The bunch will be more symmetrical, and each berry will ripen more equally if those shoulders are tied up and spread out equally on each side. Some use pruned sticks for this purpose, but I judge that soft matting is the better article, and, besides that, the branches of the bunch can be spread out more equally. While the thinning is going on examine the laterals and ties, and top the one and adjust the other.

Syringing.—During summer, before the Grapes begin to colour, give them a good syringing once or twice a-week, especially after a hot, sunny day.

Air, of course, will be given very freely in the early stages of growth, because of the plants; but as soon as the greenhouse plants are removed out of doors towards the end of May or beginning of June, less air will do for the Vines. The stage of the greenhouse will then be filled with plants, such as Balsams, Cockscorns, &c., that will bear a higher temperature. In general, the rule should be to give air as soon as the thermometer indicates 65°, the maximum heat at noon should never exceed 70°. In cold, damp weather, a little artificial heat from the flues or hot-water pipes will be of great service.

When the Grapes are fully ripe, they will be attacked by wasps and other fruit-eating insects. The best remedy is to cover the air-giving openings with fine netting or canvass. Even a door of canvass will be of service to keep out those intruders. As the Grapes in a greenhouse will hang a long time (I have had them good till Christmas) the air in the house should be kept as dry as is consistent with the health of the plants. No dead matters should be allowed in the house at all, such as yellow decaying leaves, or moss, or anything that will keep damp. The floors should be kept dry and clean, and abundance of air given during every dry day. Fortunately, all these precautions are equally as necessary for the health of the plants, as for keeping the Grapes from moulding and rotting on the Vines.

I have not mentioned the border for Vines in a greenhouse. The reader will remember what I said on Vine-borders, how they should be drained and made, but he might inquire, Will the border require covering to protect the roots? If it is properly drained, the only covering it will need is one that will keep off the heavy rains during autumn and winter. As the Vines in a greenhouse are not forced, but break naturally with the heat of the spring sun, which heat is applied also to the roots simultaneously, there is no necessity to heat the soil artificially. It is early-forced Vines that require this, in order that root action may be going on at the same time that the top action is set in motion by internal heat. On that point, however, I shall have much to say when I come to the stove and vinery culture of the Grape.

T. APPELEY.

ONION MAGGOT.

HAVING noticed your reply to "NEW SUBSCRIBER," relative to the Onion maggot, and that you know of no remedy. I beg to inform you that if your correspondent will water his Onions, when about 4 inches to 5 inches high, with the common lant (human urine), either fresh or old, it will entirely prevent the grub. I have mine always done so, and am never troubled with

these white grubs; and I venture to say your correspondent will not be if he uses the same means. I give each bad two waterings. I use the same for my Carrot crops with success.—S. H. B.

THE ROSE SHOW AT THE CRYSTAL PALACE.

THIS was a grand Show indeed, and a grand company to see it. The first five classes were for nurserymen, beginning with a collection of ninety-six varieties, and five competitors entered each with his eight dozens of gorgeous blooms. The second class was for forty-eight kinds, and ten put in for the prizes. The third class was for twenty-four kinds, and ten exhibitors competed. The fourth class was for twelve kinds; and the fifth, twenty-four kinds, and three trusses of each, in both five competitors entered—that is to say, thirty-five entries from nurserymen alone, besides the class for new Roses, in which five more entries were made. Private growers began in Class 6, with thirty-six kinds, and there were nine competitors. Class 7, for twenty-four, had no less than seventeen or eighteen entries. Class 8, for eighteen kinds, had eleven entries. Class 9, a full dozen kinds, and twenty-three entries, with two entries of Roses in pots. Count up all those and add a long tableful of Roses, not for competition, and the sum total will just tell how grand the Show was.

Then there were Pansies, Pinks, Picotees, and Carnations, and two large specimens of the Black-eyed Glory Pea of New Zealand (*Clianthus Dampieri*); also, a low spreading fine-leaved new Fern from Australia, *Hypolepis distans*, sent by Mr. Dean, the great florist of Bradford, or near it at Shipley; and also the grand bell-double *Fuchsia Mammoth*, from Mr. Smith, of the Hornsey Road Nursery. He was a *Fuchsia* man from the beginning, and that is his "Good Gracious" result at last.

The whole of the east nave or north end of the Crystal Palace was filled with all these to the very portals of the canvass division which holds the heat to the parts round the bronze fountains. But at the north end of the cut Roses stood an assemblage of prize silver cups and salts and other silvers, to tempt the lucky winners to take the full value of their prizes in wrought silver, and so get hold of family memorials to commemorate the success of the present representatives of the family estates and titles. Mr. Standish, the Messrs. Fraser, and Messrs. W. Paul & Son, were first, second, and third, for new Roses; and Mr. Mitchell and Mr. Keynes were the other two who tried their luck in novelties. Mr. Keynes was the only one who had the new yellow Rose, *Céline Forestier*; and Mr. Mitchell had a very promising new Rose, named after his better half, Mrs. Mitchell, it is a bold, rosy pink flower of good substance. But florists are not to follow me in my choice, I should soon get them into a scrape if they did. Let them follow "D., of Deal," and my word for it they will never go wrong themselves, or ever think of wronging others.

Now, then, for the ladies and the flower gardens. Louis XIV. was my favourite Rose of all the newest Roses there. But the way I viewed them was just that way I should like to see them planted. I began with the colours, and took so many of each class out of all the collections all the way round. Of course, the best as I thought, judging only from what was before me with no reference to the habit of the plants, many of which I do not know sufficiently yet to decide on the habit.

The darkest Rose there was Prince Noir, a loose flower; and the first of my group of colours consists of Roses that are darker than Général Jacqueminot, or all the best between the Prince and the Général. Eugène Appert was very rich. Mr. Standish put it as one of the best bedders, and Mr. Cranston says "it will, doubtless, make a fine pillar Rose." Princess Mathilde next, a bronzed dark purple and not very full, but is of stout substance. François Arago, a deep dark flower; Empereur de Maroc, a fine dark; Triomphe des Beaux Arts, some flowers very fine and some were loose in the centre; Cardinal Patrizzi, as dark as usual; La Muskowa (Gallica), a dark Gloire de Rosamène as one might say, but the petals very strong—would it not make a good mother in crossing? The four following might be a shade from the above—viz., Madame Masson, Lord Raglan, Victor Trouillard, and Victoire de Magenta. Louis XIV. is one shade deeper than Eugène Appert, but gets redder when going off. This will make my group of darkest Roses.

The second group begins with my favourite Général for which

I had to do battle, when some inclined it for a second-class Rose—Général Jacqueminot, the most universally exhibited of all the Roses. Sénateur Vaisse and Oriflamme de St. Louis, two splendid rivals to the Général; Gloire de Santenay and Madame Charles Crapelet, another good pair, Madame being the reddest of the two; then Géant des Batailles, Buffon, Prince Léon, and Duchess of Norfolk, which has much improved since I first saw it; Souvenir de Leveson Gower, a very large, fine Rose; and Paul Ricaut, all H.P.; but the last finish the second group.

The third group begins with that unique-looking Rose Evêque de Nîmes—should not this have been Bishop of Nîmes? Alexandrine Bachmetoff, a large, flat, bright red; François Premier, another flat, large, cherry-ripe-like Rose; Baronne Halex; General Simpson; Comtesse de Chabillant, a very good Rose, but lighter with age; Alphonse de Lamartine; Madame Hector Jacquin, looks as if a seedling from La Reine; Madam Place, a very double imbricating Rose, rising well in the centre; Madame Furtado, a splendid new Rose, deeper than La Reine, and going off after Baronne Prevost; Anna Alexieff, a pretty creature; and William Griffiths, the lightest of this group.

The next group begins with Souvenir de la Reine de l'Angleterre, Reine des Fleurs, Madame Vidot, Madam Rivers, and Madam Standish might be out of one hip at the same cross (three great beauties and no mistake), Louis Peronny, Général Pellissier, Caroline de Sansal (a large bloom with a tumbled centre), Duchess of Orleans (also very large), Naomi (more rosy), Lady Stuart (the next after the three ladies in light costume), Mathurin Regnier and Augusté Mie, which was rather loose this time; and the next, the real, scarce, pure white Roses. Madame Plantier was the best of them there. *Acidale* was there, but so loose as to raise suspicion about its habits after many years' service. Nephets from the tea party; Virginal, a promised blushing beauty; and the Malmaison and Devoniensis were the pink of the whites. And the shine of the yellows were in Cloth of Gold, Gloire de Dijon, Solfarino, La Sylphide (a fine Tea), Triomphe des Rennés (perhaps the largest of the Noisettes, a very large flat flower), and Viscomtesse des Cases (as ragged as a gipsy, but what a fine colour!) Céline Forestier is a flat flower of a more canary yellow than the Viscomtesse des Cases.

What a beautiful plantation of Roses might be made if a row was devoted to each of these groups. Although the sorts differ slightly the difference is not so much, or at least would not appear so much, in a bed as it is in reality; and I have endeavoured to put in the names just as I would plant them—but, of course, that is of no value, and any other arrangement of each group would be just as good. What I aim at is a radical change in the way of planting Roses: many of them are murdered at present for being planted just as if they were thrown down out of the top windows of a house into the courtyard. But Dahlias are nearly as badly planted for effect in most places.

But here are some splendid Roses culled out of some few of the first and second-prize collections, beginning with Mr. Mitchell's ninety-six sorts—Madame Charles Crapelet, Abdel Kader (very dark), Baronne Halex, La Pactole, Prairie de Terre Noire (a new H.P., a dark purple), Louis Chais, La Reine, Louis Gulino (very dark), Madame Schmidt, Maréchal de la Brunerie (very large, and shot silk light Rose), Prince Léon, Gloire de Santenay, Madam Rivers, Louis XIV., Général Jacqueminot, Louise de Savoie (a very large, light Tea Rose), Victor Verdier, Triomphe des Beaux Arts and Victoire de Magenta (two very much alike), Triomphe des Rennés (a splendid, large, light, yellow Noisette), Elize Sauvage (very fine), Lord Palmerston (a regular Cherrycheek—a well-marked colour), Lord Raglan, Madame Furtado, Sénateur Vaisse (fine), and Mrs. Mitchell (a stout bright rosy pink).

Mr. Keynes, of Salisbury, who only came out last year for the first time in the race for Roses, and took almost every cup and stirrup for which he ventured to run, was neck and neck, this first Rose Show, with the winner of the "Darby," and only lost by half a nose making a tie for ninety-sixes. Here are some of his best—Anna de Diesbach, more like a large pink Hollyhock than one can tell; Evêque de Nîmes (Mr. Keynes does this brilliant and very peculiar-looking Rose better than any grower there. The sort seems to be a good trial Rose to get at the skill of the grower); Prince Noir, his darkest; Abdel Kader nearly as dark; Comtesse de Chabillant; Boule de Nanteuil, one of the best of the very old summer Roses; William Griffiths; Paul Duprez, very dark red, a nice little plant on its own roots, but too dwarf to do much good on a strong stock;

Duchess of Orleans; Madam Campbell, a pale Rose, variegated, veined, and potted in a peculiar way, and then very handsome—but very often Madam Campbell is as plain as Peggy Houden; Sénateur Vaisse, one of the very best of the new Roses, and the nearest to Général Jacqueminot; François Arago, a splendid dark velvety Rose; Madam Standish, uncommonly well done; Stephanie Beanbarnais, as flat on the face as Evêque de Nîmes; François Premier; Madame Masson; Madame Van Houtte, a large, full, rosy flower; Madame Philip, in the way of Madame Vidot; Alphonse Karr, a very fine rosy pink; La Fontaine; Ornement des Jardins; Gloire de Vitry; Mademoiselle Therese Appert, a very large, fine light Rose; Lamarque; General Simpson, very fine; Reine des Violettes, one of the new Roses, and the nearest to a true violet colour; Jules Margottin, very fine.

The following are out of Mr. Cranston's collection of forty-eight in four boxes; they had a very effective look as they stood:—Madame Boll, a very large conspicuous new Rose of a rosy-peach colour, also a strong able grower; Sénateur Vaisse; Victor Verdier, a splendid new Rose, after Jules Margottin, one of the best of the new, or for a pillar Rose; Lalia, a noble flower, first exhibited by him at St. James' Hall, if I recollect right, it is something after La Reine. Mademoiselle Marie Dauvresse, an exquisite new Rose of a pinky hue; La Sylphide, a fine blush yellow Tea; Mademoiselle Therese Appert; Louis XIV.; Anna Alexieff, very large—a tree Peony-like flower; Virginal, a pure white H.P. with a blush centre; Triomphe de l'Exposition, very large; Odeur Vital, a large pale Rose; Madame Furtado, a fine deep Rose, a new one after La Reine; Louis Chaix, a very large, flat, deep red Rose; Comtesse Cécile de Chabrilant, a fine Rose; Madame Charles Crapelet, fine, bright rosy scarlet, one of the best new Roses; Common Moss; Duchess of Norfolk; Viscomtesse des Cases; Baronne Prevost; and Jules Margottin.

Next to these were another splendid lot, which took the second prize for Mr. Keynes. But we must go to the new Roses, and begin with the winning-stands. Mr. Standish took the first prize; he had two boxes, in one the flowers were arranged florist fashion, and in the second they were as I would plant the kinds—a row of each kind across the box, one row of Eugène Appert, consisting of four blooms; one row of Reynolds Hole, a bright cherry-cheek Rose; one row of Comte de Falloux, a large bright red; one row of Madame Furtado, one of the best; one row of Madam Standish, done to a tee, of course (it was very high in the centre, and opening in the way of Augusté Mic at first); a row of four of Reine des Violettes; one row of Gregoire Bourdillon, a deep red; André Desporte, bright red; Marguerite Appert, in the way of Madam Rivers, but more flat; Louis XIV.; John Standish, in the colour of Géant des Batailles; and Mademoiselle Bonnaire.

The Messrs. Fraser were second for best new Roses, beginning with the young lady Mademoiselle Bonnaire, as like Madam Rivers as if she were her wedlock firstborn; Gloire de Santenay, the very next after, if not before, Général Jacqueminot; Eugène Appert; General Washington, a very large red; Leonie Moise, a marked improvement on Empereur Napoléon; Victor Verdier, a fine thing; Triomphe d'Amiens, very near Général Jacqueminot; and Barlow, a very dark Rose.

Among those in the Messrs. Paul's new kinds, I noted Louis XIV. as the best; then Souvenir de Montceaux, a fine velvety scarlet; General Washington; Triomphe de Lyons, a seedling from Prince Léon, and an improvement on that velvety scarlet; President, a Tea Rose of a salmon tint; Madame Boll, large flat rosy peach; and Gloire de Santenay, aforesaid.

From Mr. Mitchell's new kinds in competition I booked these:—Gloire de Santenay; Sénateur Vaisse; Dominique Davan, very dark; Comtesse Louise de Hegorlay, very rich velvety dark Rose; the rest as aforesaid.

Mr. Keynes had Céline Forstier, which no one else had; Boule d'Or, a fine Tea; Madame Miellet, large, and like Baronne Prevost; Sénateur Vaisse, the best flower of it there; Belle Lilleoise, a fine purplish flower. As I was examining that flower, I heard from the opposite side something about pollen, stamens, races, two kinds out of one flower, and ever so much about crossing, upon which I pricked up my ears to see if I could catch something new or fresh, or something worth the expense of being laughed at, and I did. A great gun in the crossing line was actually explaining to a tall, thin, gentlemanly Fellow of the Royal Horticultural Society, how he could get two races of Rhododendrons out of one truss by the pollen from one flower.

Now, any one in the merry mood might lawfully laugh at my expense for having supposed that I knew a secret which is so easy of proof, when scores might have known more about it than I did. Mr. Standish is the man, and, singularly enough, Dr. Hogg was again the repository of the grand secret.

D. BEATON.

ENEMIES TO OUR FRAMES.

"I WOULD not care to enter on my list of friends the man who heedless treads upon a worm." Very good; but Cowper had not in view his Cucumbers and frames infested with woodlice, ants, &c., when he penned that kindly passage. For my own part I tread upon hundreds of woodlice, I may say, daily; and I should consider a man my friend if by so doing he could rid me of the vermin. Ah! but that was a lucky thought those last-year's *Heracleum giganteum* stems cut into 1½-foot lengths, with a piece of moss entered at one end and laid around the frame inside, to be vertically rapped on the ground every morning, and the inmates—shades of "the divine Williams"—allowed to escape if they can. (If I had the fraction of a farthing given me for each that I had destroyed this season, I should be tempted to wait upon my broker, when a maternal country would request me to wait two or three hours for a receipt; which time I should spend by taking the rail to Deptford, walking back through the market-gardens to the Commercial Dock station, take a good look at the crops and the systems of cultivation, as well as the wonderful number of trains passing one on all sides to and from our mighty metropolis.) Let alone the ants which preyed upon every opening blossom, and would have to this day prevented one Cucumber swelling off, had I not placed some bee food I had to spare in some saucers about the frame, which satisfied their rapacious maws, and became "death in the pot" to myriads. As to the aphid tribe, some brown paper soaked in saltpetre, then dried and cut into lengths about 2 inches wide, some tobacco spread thereon, rolled up cigar fashion, and two or three of them placed in forked sticks stuck into the mould in the frame, so as nearly to reach the glass. Light the self-acting cigars and place on the lights; cover up with matting to keep in the smoke for two or three hours; and when taken off there will be discovered all dead corpses, and a wipe or two of wetted sulphur against the back of the frame prevents the red spider breathing. Thus wilful man will have his way, and I have now a good show of fruit. My bed was made 4 feet high for a two-light frame of the sweepings of winter's leaves and debris mixed with the sticks and rubbish from the wood-house, along with the March clippings of the Ivy from our surrounding walls, and a very good and lasting heat the homogenies give. I adopt a system of watering, which I like very well, and it would prove applicable more so to Melon growers. An old rose of a watering-pot, with its face pummelled flat, and a water-funnel placed in that, can be moved about and made to stand between the leaves on the surface of the soil, and any amount of water or liquid manure become supplied to the roots of the plants without the foliage being wetted at all.—UPWARDS AND ONWARDS.

PLANTS KILLED, INJURED, OR UNINJURED BY THE LATE SEVERE WINTER.

UNINJURED.

Thuja occidentalis, *T. gigantea*, *T. pyramidalis*, *T. plicata*, *T. sibirica*, *T. Craigiana*, *T. robustum*, *T. caucasicus*, and *T. macrocarpa*. *Cupressus Lawsoni*, *C. thyoides*, and *C. thyoides atrovirens*. *Pinus cembra*, *P. excelsa*, *P. Jeffreyi*, *P. Lambertiana*, *P. Bordsleyi*, *P. laricio*, *P. austriaca*, *P. pumila*, *P. Benthamiana*, and *P. monticola*. Common Box. All the Yew tribe, except the common, of which there are some cut. *Juniperus virginiana* (true), *J. sabina*, *J. tamariscifolia*, *J. prostrata*, *J. sabina variegata*, *J. communis*, *J. suecica*, *J. oblonga pendula*, *J. sinensis*, *J. sinensis stricta*, *J. glauca*, *J. excelsa*, *J. hibernica*, *J. hibernica compacta*, *J. squamata*, *J. alpina*, *J. thurifera*, *J. sphaerica*, *J. viride pendula*, *J. pumila*, and *J. fragrans*. *Retinospora cricoides*. *Aristolochia siphon*. *Ilex lanrifolia*. This is the only Holly that has stood the winter here without being cut. *Berberis japonica*, *B. communis*, *B. aquifolia*, *B. glumacea*, and *B. empetrifolia*. Broom, pale and yellow Portugal. *Cedrus libani*. *Picea Fraseri*, *P. nobilis*, *P. amabilis*, *P. Nordmanniana*,

P. pichta, and *P. balsamea*. *Thujaopsis boreale*. *Abies elan-brasiliana*, *A. Menziesii*, *A. Douglasii*, *A. orientalis*, and *A. canadensis*. Honeysuckles: *pubescens* (yellow), Yellow Trumpet, Early Yellow, Early Dutch, and Late Dutch. *Arbutus arctica*, *A. prostrata*, *A. sibirica*, and *A. Drummondii*. *Kalmias*, sorts. *Andromedas*, sorts, except *A. speciosa* and *A. axillaris*. *Deutzia gracilis*. *Skimmia japonica*. *Cunninghamia lanceolata*. *Ledums*, sorts. *Menziesia empetrioides*. *Ericas*, except *E. australis*. *Genistas*, sorts. *Daphne encedrum*, and *D. neapolitana*. *Lilacs*, sorts. *Spiræas*, sorts, *S. Lindleyana* and *S. bella*. *Weigela rosea* and *W. amabilis*. Most of the *Rhododendrons*.

SLIGHTLY INJURED.

Wellingtonia gigantea. *Cupressus thyoides variegata*. *Abies pinsapo* and *A. cephalonica*. *Ilex Hendersonii*, *I. ovatum*, *I. Donningtoni*, *I. Foxi*, *I. Smithii*, *I. tortuosa*, *I. madeiriensis*, and *I. heterophyllum*. Box, variegated tree. Box edging. *Arbutus mucronata*. *Prinos glaber*. *Berberis duplei*. *Rhododendron dauricum atro-virens*. *Cedrus atlantica*. *Erica australis*. *Cryptomeria Lobbi*, *C. Menziesia*, *C. polifolia*, *C. polifolia alba*, *C. globosa alba*, *C. nana*, and *C. pensylvanica*. *Pyrus japonica*.

SEVERELY INJURED.

Ilex monstrosus, *I. ferox*, *I. aquifolium* (common), *I. dahoon*, *I. fructu-luteo*, *I. crispum*, *I. balearica*, *I. Shepherdii*, *I. ciliatum*, *I. ciliatum major*, *I. aquifolium pendula*, and all the variegated kinds. *Aucuba japonica*. *Taxodium sempervirens* and *T. distichum*. *Cedrus deodara* (some plants 10 feet to 12 feet high killed). *Cryptomeria japonica*. *Ligustrum japonicum*, *L. nepalense*, *L. vulgare*, *L. vulgare sempervirens*, and even the old Privet hedges, thirty or forty years old, are killed to the ground. Broom, white and yellow (common). *Cytisus*, several sorts. *Cotoneaster microphylla*, *C. uva-ursi*, and *C. acuminata*. *Thuja sinensis*, some killed. *Laurustinus*. *Daphne laureola*. *Juniperus recurva*. *Garrya elliptica*. *Arbutus nuedo*, and *Arbutus andrachne*. *Ribes speciosa* and *Escallonia macrantha*, both growing to a south wall, and both killed to the ground. *Alaternus*. *Berberis Beali*. *Araucaria imbricata*, some killed. *Pyra-cantha*. *Thuja aurea* (some killed), *T. compacta*, *T. sinensis variegata*, and *T. tartarica*. *Glycine sinensis*. Honeysuckle *Shepherdii* and *Scarlet Trumpet*. *Phillyrea*, sorts, mostly killed. *Deutzia scabra*. *Scorpioides Senna*. Ivy, palmated, Irish, common, and the variegated sorts. *Juniperus phœnicia*, *J. dealbata*, and *J. Smithiana*. *Abies Smithiana*. Evergreen Oak and Lucombe's Oak. *Buddleia globosa*. Double Whins. *Spiræa Lindleyana* and *S. bella*. *Cistus laurifolia* and *C. gum*, some killed. Laurels, Portugal and common, narrow-leaved and sickle-leaved. Walnut. Old Oak trees. Old Apple and Pear trees, some killed.

TOTALLY KILLED.

Ilex cornuta and *I. latifolia*. *Cupressus Knightii*, *C. Udeana*, *C. Goveniana*, *C. Coreyaana*, *C. Lambertiana*, *C. macrocarpa*, and *C. funebris*. Chinese Privet. *Libocedrus chilensis*. *Pinus Craigiana*, *P. insignis*, and *P. radiata*. *Thuja neapolitana* and *T. glauca*. *Juniperus Wallichiana*, *J. Gossanthanea*, *J. bermudiana*, and *J. Bedfordiana*. Ivy *Regneriana*. *Berberis Fortunei*. —JAMES SMITH, *Darley Dale Nurseries, near Matlock*.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 272.)

STANDING-UP BOUQUETS.

THERE is another mode of arranging flowers of which we have not at present spoken, yet it is a very useful and effective plan.

Any common flowers do very well in this way. Very choice flowers, indeed, are rather wasted for such a purpose, while a close mass of common flowers will, at a little distance, answer extremely well.

For these great, flat, one-faced nosegays the usual way is to select, first, some large and flat green spray. Box does well, and so does Fir. It must be very stiff, and if the ends are also pretty it is so much the better. Several pieces of green can be bound together to make up the required shape; and if the side branches are very

straggling, they should be woven in and out till they form a tolerably close mass.

Having arranged the background with a stem as long as you intend to make the flower-stalks, a large solid flower, or bunch of flowers, should be selected to form the centre. If on a soft stalk it will require mounting; and then, being thrust straight through the middle of the flat green branch, must be bent down at the back and bound down to its stem.

Before I go any further, it will be well to mention that these flowers must be mounted on green supple stems—not, as for other forms, on short square bits of deal. Green Hazel or Willow stems do well, but any green stems answer equally, and the flowers should be bound firmly on with a little of the common galvanised zinc wire.

A white *Dahlia* is a most beautiful centre for a bouquet of this kind, or a white one edged with pink; and the flowers can either shade off from it, or there can be an exceedingly dark centre, with the flowers gradually growing lighter as they approach the outer edge.

Geraniums are very beautiful in this style, and so are all the large transparent flowers—Azaleas, for instance, and Lilies and Passion-Flowers. Passion-Flowers and Geraniums, with Roses in the centre, would be very beautiful.

Fuchsias can very well indeed be used for vases that are filled in this way, both for drooping over the edge and for the outer circumference of the whole.

The very clear white kind with brilliant pink or scarlet tube is the best sort to use; and crimson sprays look very well, arranged with these, around. Very clear bright crimson it should be, however; and the corolla should be of blue, not of a reddish-purple.

These Fuchsia sprays should be wired on to stems, no matter how short they themselves may be; and little wet pieces of cotton or gutta percha should surround these stems and be carefully wired on.

Every flower-spray contained in these nosegays must be separately passed through, the stem going through from the front to the back, and being there bent down and bound.

Many people, if the flowers with short stalks are numerous, lay the whole contrivance down on its back in shallow water, so that it gets well saturated without any water touching the petals in the front. When taken out of the water, the flowers are merely laid down for a short time on a coarse piece of cloth to drain.

Repeating this process every night is a powerful means of keeping the flowers fresh and vigorous. Another most excellent plan for keeping flowers fresh is standing them at night outside a window looking to the west, so that they will not have the early morning sun. The cool night air and the dew in summer always seem wonderfully to revive them. This is, however, only *en passant*.

The flowers to use must be regulated by the style of the place that requires filling. For a large vase a good way from the eye very large flowers may be freely used. Dahlias for the centre and three or four more round; very large Roses, with Chrysanthemums or Carnations, to form a great part of the mass. Scarlet Geraniums and white flowers in this case are extremely useful in touches of bright colour put in about the outer edge, and in small masses elsewhere for light.

Verbenas do well: the kinds with a white eye, amongst the reds, are far the brightest-looking.

The centre requires to be very closely packed with flowers, though from each flower showing its full surface the quantity consumed is less than might have reasonably been expected.

Carnations come in remarkably well here, as do also the great white Lilies. White Geraniums and Roses though open to objection because of the petals falling,

can yet be easily cut short off, freshly-mounted flowers being inserted in their place.

I always avoid placing at the top of a large and high group like this, flowers that every one knows are very low in growth. And climbing Roses, Clematis, Honey-suckle, and Jasmine generally give one flowers enough for edging.

Tall sprays of blue Lupine do not look badly; Columbines and Snapdragons and Fox-gloves are pretty, and pale blue Irises are delicately lovely.

When the bouquet is not to have a solid-flower centre, I think it is best to collect two or three flowers of the most decided colour, to form there something that may be a starting-point. Under all circumstances, however, it is from the centre that we should work—not, at least, the exact centre, but the centre of the front, just above the hand, only allowing room for a drooping lower spray.

Many persons back the whole with a fresh spray of foliage, something that has points of a pretty green; and this is so far good that it can be changed almost daily if it should become faded.

A BASKET OF FLOWERS.



I know not what flowers to describe for this, it is such an all-season composition.

It is low and wide and has a tall light handle, and over the edges Ivy leaves are drooping.

The stem of Ivy is twisted round the handle, and the green leaves all round are so thickly placed as almost to hide the basket itself entirely.

Being a group for all months we may take the first and describe our January basket.

A cross-bar of green should run all through it both ways, dividing it into four distinct compartments, the green surrounding all forming a graceful frame.

If none of the divisions are filled with white there may be a double line of it, or a line on one side, the green all round making an edging. White Azaleas for this are very beautiful, Snowdrops being certainly not less suitable. A corner full of wild Primroses arranged in leaves (in real good country places one always knows of some bank that even in January is not hopeless of sweet little yellow buds) would be very pretty, and forced Violets next to them; or pink Hepaticas, and at cross corners with the Violets some of the pretty Scillas, or a group of pencilled Crocus.

Pink Hyacinths and sulphur-coloured Primroses, blue Crocuses, and low dwarf Tulips make a pretty basket too.

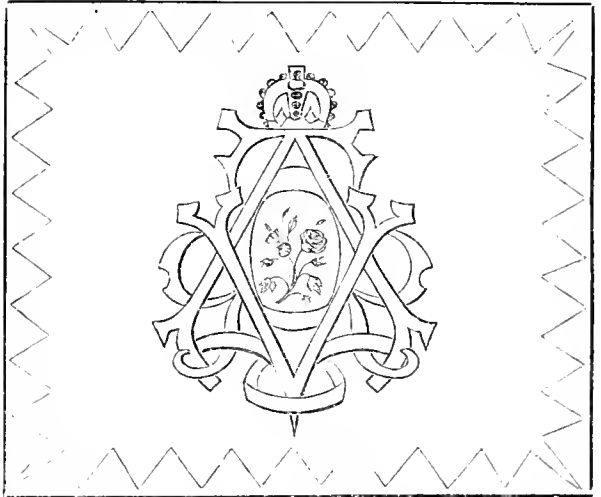
White Azaleas and Scarlet Geraniums, Violets, and blue Hyacinths are also beautiful.

Also white Roses, crimson Roses, pink Roses, and the delicate buff Tea-scented kind with Lilies.

But, whatever the flowers may be, and no matter how

lovely they are, the more their green frame shades them the more they will be admired.

In the floral paper of July 3rd there was accidentally inserted an unfinished paper. The writer had come to a standstill in the difficulty of choosing a suitable and appropriate pattern, and then by an oversight the paper went to press. It was, in fact, feared that the difficulty of even the slight amount of shading required in the Rose-Shamrock-and-Thistle pattern would render it less useful than others might prove to be.



We have, therefore, adopted the pattern of a frame that was engraved in the "Art Journal." The letters V. A. R. forming a monogram, and surmounted by a crown. This will enable us to explain our meaning, while the letters themselves are of the most popular.

In this pattern the band-like stems of the letters may be made of any width proportioned to the whole size. They should be entirely of gold colour; or the shaded side of each in gold colour and the other in white. Gorse, Laburnum, Cowslips, Buttercups, and Broom are all good flowers for it; and for the white, Guelder Roses, May, Rose leaves, Verbenas, Violets, &c.

The ribbon bearing the motto should be blue or crimson, with the letters gold-coloured. Geraniums, pink May, red Roses, or Stocks do well.

The royal crown which surmounts the monogram should be, of course, mainly of gold; and thus generally the tracery consists entirely of that colour, with a little white, and crimson or blue according to the tint determined on for the ground; for which Royal Blue (Larkspur, Blue Bells, Iris, Hyacinths, &c.), is much to be recommended, though crimson also would look extremely well.

Whichever is the ground colour, the other will have to fill the frame inside. And on the outer ground the colour of the crown jewels must in a degree depend.

Pearls, represented by Snowberries, small white Roses, or Lilies of the Valley, or double Hawthorn, or white Verbena would look very well in the circles; or so would rubies if the ground is blue, made of Scarlet Geraniums or red berries, the berries answering best of all for this innocent sort of "paste."

The squares, of course, are also for some bright-coloured gem, emerald green, or ruby red, as may look the best.

The inside of the frame might be filled with a bouquet of large gay flowers, on a white, crimson, or dark blue ground. The edge is well finished by a simple Vandyke, or a trellis pattern.—E.

(To be continued.)

GREEN'S MOWING MACHINE.

HAVING seen in your last week's paper a paragraph relative to the sharpening of mowing machines, in reply I am glad to say I have entirely remedied the small difficulties which the gardener in using a mowing machine had to contend with. I willingly admit, as you have stated, that when the machine is properly used it will go some considerable length of time without sharpening; but I found that when required to be done it often not only took the skill of an intelligent gardener to test, but in many cases that of a mechanic. In consideration of this I have made the following alterations:—The cylinder has a pinion on each end, and the cutters being steel on both sides, by reversing the cylinder it becomes self-sharpening. This I have found to act admirably,

and consider it to be the *ne plus ultra* of self-sharpening. Further, I find that remark is made as to the slipping off of the chain. In reply, I am happy to say this is entirely remedied by means of a small flange which we have screwed on to each wheel.

In proof of the above statement I beg to refer any gentleman to the Royal Horticultural Society's Gardens, Kensington, where several of my machines are kept constantly at work; the Crystal Palace Company, Sydenham; and also the Royal Botanic Gardens, Regent's Park, where they may be also seen daily at work.

In conclusion I beg to thank the author of your paragraph for his admiration of Green's Lawn Mower.—THOMAS GREEN.

VRIESIA SPECIOSA.

THIS is a most brilliant plant, for not only are its leaves variegated with zebra-like stripes, but the crimson of the bracts of its spikes is very bright and long-enduring.

The genus *Vriesia* belongs to the Natural Order Bromeliaceæ, and to Hexandria Monogynia of Linnæus. It was named after Dr. W. de Vriese, Professor of Botany at Amsterdam. It is certainly a native of South America, and probably of the vicinity of Rio Janeiro. It first bloomed in this country during the spring of 1848, in the stove at Kew. It was first introduced to Europe by M. Neumann, who sent it to the Jardin des Plantes, at Paris, under the name of *Tillandsia splendens*. Coloured portraits of it are in the "Botanical Magazine," t. 4392, and in the "Gardener's Magazine of Botany" for 1850, vol. i., 217.

Leaves radical, a span or more long, lorate oblong, canaliculate, or almost semi-cylindrical, very concave at the base; the margin entire; the apex inflexed, blunt, but tipped with a mucro; colour dark green, with black transverse bands. *Scape* arising from the centre of the leaves, a foot and a half long (including the spike), terete, scaly, green, with black spots; this is terminated by a compact spike of lanceolate-acuminate, complicate-compressed, carinated, closely imbricated bracts, each including a single white flower. *Flowers* longer than the bracts, cylindrical, curved, soon withering. *Calyx* of three oblong, scarious, obtuse, erect sepals. *Corolla* of three linear-spatulate petals, with two scales within at the base. *Stamens* six, rather longer than the petals. *Ovary* almost, if not quite, superior. *Style* filiform, longer than the stamens.

Though the flowers themselves are ephemeral, yet the plant continues for a long time exceedingly ornamental; the most showy part—the spike of richly-coloured bracts—being very enduring. Gradually the bright scarlet of the lower bracts becomes duller, and eventually greenish, and at last this colour extends over the whole spike.



GOOSEBERRY-TREE CATERPILLARS.

Is there any known remedy for the pest now infesting this neighbourhood, the Gooseberry caterpillar? We have tried—1, lime water; 2, branches of Elder stuck in the bushes; 3, branches of Whin or Gorse in the same manner; 4, white hellebore, in solution of water; 5, soot; 6, shaking the trees, and besmearing the stems with train oil; 7, dredging with fresh white hellebore; 8, syringing with Gishurst Compound—many of which applications have been suggested in your pages, all to no purpose. The discoverer of some efficient and certain cure would be a notability of the age.—FILLINGHAM.

[We never knew white hellebore powder, dredged upon the bushes two or three times by means of a tin pepper-box, fail in clearing them from the caterpillar of the Gooseberry saw fly. It is essential that the powder is fresh—that is, of the previous year's growth and preparation. Hellebore powder that has been long in a druggist's stock has lost most of its power. That fresh powder diligently applied will destroy the present brood; and tanner's bark spread over the soil about three inches deep will prevent the caterpillars descending into the earth. They become pupæ in the tan, which may be removed and burnt. The fol-

lowing is Mr. Curtis's account of this marauder, its parentage and habits:—

"This insect was described in 1823 by a French author, Le Pelletier de Saint Fargeau, under the name of *Nematus trimaculatus*; and it is also called *N. ribesii*, *Tenthredo grossulariae*, and *T. ventricosa*; but the first name has, I believe, the right of priority. The fly is of an ochreous colour; the antennæ are almost as long as the body, setaceous, brown above, and nine-jointed, the two basal joints small; the crown of the head, eyes, three large united spots on the centre of the trunk, as well as a large patch on the breast or sternum, are black; the body is orange, sometimes bright; the wings, which expand two-thirds of an inch, are iridescent; the reticulated nervures, the thickened costal edge of the superior wings, terminated by callous spot, called the stigma, are brown, as are also the tips of the hinder shanks, and their tarsi or feet.

"The flies emerge unheeded from their tombs the beginning of April, and the female soon deposits her eggs close to the sides of the principal nervures on the under side of the leaves, which is very remarkable, for all the females of this extensive family are furnished with an instrument called the saw, for the purpose of cutting into the leaves and stalks, and introducing the eggs between the cuticles, or under the bark. In about a week the larvæ hatch, and commence feeding on the leaf on which they are stationed, and soon riddle them full of small holes; thus they go on feeding and changing their successive skins as they increase in size, until they are three-fourths of an inch long, when they are seen scattered round the edges of a partly-demolished leaf, holding by their fore legs, with their tails turned up, or lying on one side. At this time they are dull pale green; the first thoracic segment is deep yellow, and the penultimate of the same colour; the head, feet, and tail are black, and each segment is dotted with the same colour, some of them having twenty-four spots ranged in rows down the back, those on the sides being more irregular, and one near the base of each foot is large; every one of these black tubercles produces a hair: they have six pectoral sharp, horny feet, with which they always hold fast; the fourth segment seemed to be destitute of feet, but the six following were each furnished with a pair of fleshy legs which assist them in walking, and there is a similar pair at the extremity of the last segment.

"There seems to be a succession of broods, from the early spring until October occasionally; but the greatest numbers are congregated in May and the beginning of June, when, I understand, they have caused £20 or £30 of damage in a market garden near London in one season; but in the neighbourhood of Blandford, last year, the second attack upon the Gooseberry bushes in July and August was, if possible, more devastating than the first. Having defoliated a bush, leaving nothing of the foliage excepting the footstalk, and sometimes a portion of the main rib; and, being arrived at maturity, they cast their skins again, and then lose all their black spots, becoming of a uniform pale green, with two little black dots on the head, the spaces behind it and towards the tail retaining the yellow tint. After resting awhile, they descend into the earth, and spin a yellow-brown cocoon, formed of silk and gluten of so thick a texture that it is impervious; from these the summer broods of flies come up in less than three weeks, but the autumnal ones remain in them, curled up in the larvæ state, until the following spring, when they change to pupæ in time to produce flies, as the Currant and Gooseberry-trees are coming into leaf."]

POMOLOGICAL CLEANINGS.

THE BUCKLAND SWEETWATER GRAPE.—This very excellent, hardy, and prolific variety has in one sense been wrongly named, for it has no relation to the Sweetwater race, taking as the type the old Dutch Grape known so well under that name, and of which there are so many varieties all closely allied in habit; for without one exception they are all more or less, according to circumstances, inclined to what the French Vine growers call "couler." We have no word to answer to this as technically applied; for, as commonly used, it is to flow, and also, according to Dufief, to blight. Our expression is "setting badly"—i. e., in many cases only one-third or one-fourth of the berries grow to their full size, the others on the same bunch not swelling, but remaining of the size of very small Peas. The Buckland Sweetwater has not this fault, but sets as freely as a Black Hamburg, in this respect being like its near relative the Golden Hamburg.

If its leaves and habit are looked into it will be found quite different to the Sweetwater race, and a pure Hamburg with leaves more deeply cut than the common sort, and approaching in that feature to the Richmond Villa Hamburg, a variety not of much worth. It is the bold robust habit, and freedom in bearing and setting its fruit, that is so much to be admired in the Buckland Grape, and that will make it when well known supersede the Golden Hamburg, which is a weak grower unless under very high culture, and more slow in coming into bearing than the Buckland. Some six, or seven, or more years since, the late Monsieur Vibert, of Angers, raised a Grape from seed, which has been named by his successor "General de la Marmora." By a strange coincidence this is identical with the Buckland in leaves, in its robust habit, and in its fruit. Monsieur V., with more judgment than our pomologists have shown, placed it among Grapes "*étrangers au chasselas*."—i. e., not a Chasselas Grape, under which name the French cultivators class all our Sweetwater and Muscadine Grapes. I forget the origin of the Buckland, but I think it was given when the variety was first exhibited at one of the meetings of the Pomological Society.

THE MUSCAT HAMBURG GRAPE.—This has not been exhibited this season. It is to be hoped that it will be, for many growers complain that it produces small bunches, irregular in the size of their berries, and also irregular in ripening. The bunches exhibited at one of the meetings of the Pomological Society were superb, so that, probably, it may require some peculiar mode of culture. Some of your correspondents can perhaps enlighten us on this head, and give some instructions as to the proper mode of culture. One amateur planted one vine entirely with this sort, but was so dissatisfied with the produce, that in haste he rooted up all the vines, and probably repented at leisure.

THE DUKE CHERRIES.—There is, perhaps, no group of fruit trees more interesting than the varieties of this class of Cherries. Their habit is so peculiar, agreeable, and so well adapted to the fruit garden: for either as pyramids, bushes, or even standards, they are always ornamental and fertile. I have this season had all the leading varieties under very close observation, as they have been growing in a small orchard-house, 20 feet long and 11 feet wide, devoted to Cherries, in which they are planted out in the borders and cultivated as pyramids. The first variety that opened its numerous clusters of pearly flowers was the Empress Eugénie, a variety recently introduced, and which was raised from seed at Fontenay aux Roses, near Paris. In about eight or ten days afterwards our very old friend the May Duke came into bloom, closely followed by the Archduke, Royal Duke, Duchesse de Pallau, a variety raised from seed by Dr. Bretonneau, of Tours, a fine vigorous grower forming naturally a pyramid; and, lastly, Nouvelle Royale, a new introduction from France, and one of the latest of the group. The "Late Duke" Cherry, a sad misnomer, has but little if any affinity to the class. In ripening, these varieties have succeeded each other nearly as follows:—First, Empress Eugénie, and in about a week afterwards the May Duke; then followed the Archduke, Royal Duke, Duchesse de Pallau; and, lastly, Nouvelle Royale. All the above have the brisk, sub-acid flavour peculiar to our well-known May Duke Cherry, and all are good; but I have been particularly struck with the earliness and prolific habit of Empress Eugénie, and the large size and lateness of Nouvelle Royale; as far as can be judged this fine variety will last all through July till far in August. Its leaves are large, roundish, and of the richest dark green. A Spanish Cherry very nearly allied to the Duke Cherries is likely to be interesting, its Spanish name translated is "Love-Apple Cherry," because of a faint resemblance to the fruit of the Tomato, in being divided by sutures into three divisions; in flavour it is like the Duke Cherries.

Query.—Why is the Tomato called "Love Apple"? Is it because but few English people love it?—T. R.

THE POTATO DISEASE.

THIS murrain, blight, or disease, is said to have first appeared in this country during the autumn of 1845; and to have been first discovered in 1842 at the Isle of St. Helena, the exile home of the great Napoleon. However, I humbly beg to be allowed to state that there is not the least proof of its not being known in England prior to 1845. On the other hand, there is evidence in abundance to convince even the most sceptical that the Potato is liable to (and has been) diseased like every other cultivated

plant more or less since its introduction into Ireland in 1586, though it was not until the year 1791 that any remarkable destruction of the haulms or tubers by disease is recorded.

In 1791 we have the first notice of the "dry rot" in May, and during the autumn of the same year "the wet rot" was very prevalent. The wet rot was more or less prevalent during the years 1791, 1797, 1801, 1807, 1814, 1815, 1825, and 1828. If we look carefully at the above dates we shall perceive something peculiarly interesting. In 1791 there were riots in Birmingham and other places, partly owing to the want or scarcity of provisions. This very year the dry rot prevailed amongst the Potatoes. I take this dry rot to be a rapid decomposition of the tuber that has been diseased previously to planting, but owing to its being kept in a dry place before planting did not decay; yet when placed in a moist soil the tuber rapidly decomposed. I believe the spores of the fungus to have entered the cellular tissue of the plant the previous season.

In or about 1791 commenced a series of years of scarcity, and continued until 1818. A want of provisions stimulates the producers to increased and superior modes of cultivation. The wet rot appears to be identical with our murrain. The "Old Gardener," to whom I am indebted for the dates of the prevalence of the rot, describes the rot thus:—"After harvest the Potato fields emitted a peculiar smell, very nauseous, or so bad that it sometimes caused me to have the English cholera, which I never had at other times; and when we took up the crop to store in October nearly all of the Potatoes were rotten in the hollows of the field, while those grown on the higher parts of the land were not so bad." Will any one point out the difference between that rot and the more recent, for I must confess that I cannot perceive any? It is evident, then, that the Potato was subject to rot or disease at least seventy years ago. But as manuring was not carried out as it was after 1810, the Potato remained, with few exceptions, in almost its original condition; and, not being subjected to repeated strong doses of stimulating manures, was not so liable to disease as it is at the present day. All the difference I perceive to be anywise worthy of notice is this—they were rotten in the ground then, and so they would be now if left in the ground until October or November. When I was a lad (I am only in vigorous youth yet), Potatoes were seldom planted before May for the main crops, and it was considered quite soon enough to have them taken up so as to be stored away before November was out. We take them up in August now, and use them (diseased tubers) to feed pigs, &c.; and if we consider in addition the drainage of our fields, we shall see at a glance why they are not rotten now the same as formerly.

The Potato is very difficult to trace to its native habitat. Some say it is Peru (near Lima), whilst Mexico is fixed as the place of its origin by others. Whether it comes from Peru or Mexico, the days there are hot and the nights cold, or, in other words, the range of temperature must be great. Moreover, there will be a season of rapid growth (owing to the moisture), and another corresponding period of dryness, when the juices of the plant must be concentrated in the tubers from the parching heat. Another difference endured by the Potato is in the manuring. There is double the quantity applied now, compared with formerly, to a given quantity of surface. The consequence is, that the produce is doubled; but, on the other hand, we lay the foundation of disease by too strong manures applied at distant intervals, and at a time when it is least required by the Potato. Why? Because the leaves are not able to digest the watery and crude sap impelled into them from the roots stimulated by excessive manuring—so excessive that the leaves cannot sufficiently perform their functions, so that the sap descends the stem in an undigested state to the tubers, and the whole system consists of deficiencies. Starch is the chief constituent of the Potato (excepting water); but in a Potato infested with blight the quantity is very small, frequently no more than 2.30 per cent., while in a sound condition it contains, on an average, as much as 15.72 per cent. (See Hogg's "Vegetable Kingdom.")

If we place a number of Potatoes—say twelve the beginning of February, (when the temperature of the earth at 1 foot deep may range from 35° to 40°; 38° is the average of the first week from twelve years, mean), planting them 4 inches below the surface, we shall find they will not grow (sprout) until the temperature of the earth attains 41°, and that they do not grow rapidly until 45° is attained, which takes place the last week in March generally. We may also observe that until the temperature of the air at 4 feet becomes equal to the temperature of the earth at 1 foot deep, the shoots will not appear from under

the soil, or not until the temperature reaches 50°—the latter part of April, or beginning of May in ordinary seasons, but liable to exceptions, the 8th of May is the average of twelve years of its being that temperature in this locality. Soon after Midsummer the earth attains here a temperature of 61° as the average, and 62° that of the air (mean). The mean maximum being 78°, and mean minimum 46°, on an average. The average of twelve years fixes the date of that period of comparative rest belonging to the economy of Nature as the 8th of July here. Greater part of the trees have made their growth for the season by that time. The Rose tribe blooms and seeds, and Wheat flowers and sets. Some few exotics remain in a state of torpidity, and the Potato is one of them.

Let me now be permitted to state some practical results. I propose to choose a plot of ground 21 feet long and 10 feet wide, in an open situation, divide it into seven equal parts, or so that each part will be exactly 10 feet long and 3 feet wide when divided. Dig the whole with a fork, and be sure the whole is done alike. Provide seven labels, numbered 1, 2, 3, 4, 5, 6, 7. Place one in each of the parts. Manure No. 1 with one bushel of ordinary dung, spread it equally over the surface, fork it in, and do the same way with the next four. No. 2, 2 lbs. common salt. No. 3, 2 lbs. muriate of potash. No. 4, 2 lbs. sulphate of ammonia. No. 5, two bushels of charred vegetable refuse. No. 6, no manure of any kind. No. 7, to be planted in the ordinary way, by making a row along the centre 6 inches deep, putting two bushels of dung in the row, and then six sound tubers (as far as the eye can guide), and cover them with 4 inches of soil. Make a row along the centre of each rectangle 4 inches deep, placing therein at equal distances six Potatoes, cover with soil, and hoe, earth up, and make notes on which grows the strongest, the quickest, &c., in a book, for the memory must not be trusted.

I planted the York Regent (but that is immaterial), only let it be some round kind, and by no means a seedling of less than six years' growth. Let the Potatoes be of one sort and of an equal size, for partiality is useless in experiments. Something more, and then the experiment will be in order—Put six seedling Potatoes in six nine-inch pots the second year of their existence, plunged in the open ground, and to remain there until further orders. We plant them all unsprouted on one day, and that the 1st of April.

No. 7 appears above ground the first; No. 4 will be second; and No. 2 the last.

No. 4 grows the stiffest, most erect, and branches close to the ground, producing altogether a strong, sturdy, abundant, haulm. No. 3 the same, excepting there is rather less haulm. No. 1 much the same as No. 3, but if anything less haulm. No. 5, strong, short, erect, branching near the ground, colour dark green, and every way the best top of the whole. No. 6, a good, short, moderately strong haulm. No. 2, long, strong, abundant, branches little, and straggles on the ground, altogether having more haulm than any of the above. No. 7, long drawn, weak, pale green, somewhat branching, trails on the ground, and producing more top than any of those mentioned. There are more peculiarities worthy of notice, but the above is the pith. The month of July is with us, and it may be the beginning of August, perhaps, before the disease appears. However, when it does come, which may easily be perceived by the brown spots on the leaves and haulm, fetch the six seedling Potatoes (which will not be diseased), plunge them near No. 7 (for they will be the worst attacked by the disease), so that the haulms of the seedlings and those of No. 7 can be tied together. Tie them with Cuba bast, and the result will be that the seedlings will not be attacked by the fungus although in contact with the diseased haulms of No. 7.

From the seedlings we learn that until some peculiarity becomes developed in the plant, no fungus acts upon them. No. 7 shows that strong, stimulating manures produce a fit state of the plant for the fungus (*Botrytis infestans*), and if the last be permitted to remain in the soil until October, and August or September is wet, the rot will prevail exceedingly amongst the tubers—in fact, they will be rotten. No. 2 escapes the disease the longest; No. 5 the next; and No. 6, with the two last, will suffer very little from the disease, if August and September be sunny and dry. Moisture is an essential for the development of fungus, and should the hygrometer show a mean humidity of less than 85° (Saturation=100), we shall not experience much disease amongst Potatoes. No. 3 stands the disease well; No. 4 not so well; and No. 1 escapes with few injuries.

Their productive returns may rank in the following order ; —No. 1 produces 9 lbs ; No. 2, 12 lbs. ; No. 3, 14 lbs. 8 ozs. ; No. 4, 13 lbs. 6 ozs. ; No. 5, 14 lbs. 10 ozs. ; No. 6, 9 lbs. 11 ozs. ; No. 7, 15 lbs. 7 ozs. These are my results, but very much depends on the nature of the soil and the season.

I will state how to work when the disease occurs. When the fungus is first seen on No. 1 I pull all the haulms up, placing the foot so as to prevent the Potatoes being drawn up too. Cut the tops off No. 2 close to the ground. In a fortnight afterwards take both up, and we shall find the disease a little on No. 2's tubers, but none will be diseased in No. 1. Place No. 1's tubers in a box, in moist silver sand, and place it in a dry place where the temperature ranges from 85° at first, to be gradually raised to 120° during a fortnight ; no water must be given them, and there must be holes in the box to let the steam out. Treated in this way the tubers do not rot when stored ; and planted the year following in land not rich, only allowing them to have the dew from above, they will not be diseased. No. 2 to be stored away in the usual way, after having taken all the diseased tubers from them, and some of the apparently sound tubers will be diseased if examined in the spring, or should we plant them we shall have the dry rot, the self and same as our fathers had. On No. 3, Gishurst Compound in a solution of 4 ozs. to the gallon of soft water destroys the fungus ; but unless the cause be removed it is useless, for it re-appeared in a few days, and continues to do so, so long as there is any sap in the haulm, all the time the tubers were getting worse daily. I tried sulphur on No. 4, quicklime on No. 5, and salt (a solution made of 1 oz. of salt to the gallon of water) on No. 6. The two former were in effects similar to those treated with Gishurst. But No. 6 showed no symptom of disease when taken up, and only eight tubers went bad afterwards.

From the above and a few more notes (not given at present) I draw the following conclusions :—1st, That the fungus (*Botrytis infestans*) is not the cause of the disease, but is its consequence. 2nd, The cause is a deficiency of digesting power in proportion to the food taken up by the roots, that deficiency being brought on by a long course of strong stimulating manures, which have made the plant tender, as has been the case with Celery, Cabbages, &c. 3rd, That when a plant (particularly a tuberous one) becomes tender under high cultivation, it requires more heat and dryness to perfect the growth than one that is not only on a poor soil, but even more than a plant that is moderately fed.—GEORGE ABBEY, *Gardener to E. Hailstone, Esq., Horton Hall, Bradford, Yorkshire.*

VARIATION OF THE LEAVES OF PLANTS.

IN one of your contemporaries is an article by "AN OLD SHOWMAN," on a subject which is at the present time very interesting, and it opens a field for discussion among our "practicals" and scientific men which may lead to results of exceedingly useful character—I mean the variegation of plants.

The writer of the article chiefly alludes to "variegation in Pelargoniums," and contends, with some appearance of truth, that variegation is disease, and that view is to a certain extent held by that great hybridist, J. Anderson, Esq., of Edinburgh.

"OLD SHOWMAN" says, to quote his own words, "As to the primary cause, I consider it to be water absorbed by the roots while in a state of decomposition, [query, is it possible for water to be in a state of decomposition?] or some of its constituent parts, and to be absorbed by healthy roots, and then some chemical change takes place which affects the tissues ; but of which change we have not at present a perfect knowledge."

Mr. Anderson says, "I could never regard it (variegation) in any other light than as diseased," and then, in the next paragraph, Mr. Anderson says that he generally holds "OLD SHOWMAN" to be correct as to the true cause or "primary cause"—viz., "improper drainage, by which plants get saturated with water and poor soil."

With deference to both, I contend that variegation is not disease. "OLD SHOWMAN" is correct without doubt that "there are fixed laws which govern the cause as well as the effect," but let us first find out the cause ; we know the effect as seen in the beautiful marked Pelargoniums, Begonias, Ivy, Hollies, Yews, &c. If it is disease caused by defective drainage and poor soil, and not a chemical change from some other or additional cause according to the regular course of nature, a contrary or opposite course of treatment would bring that

variegated sport back again to its original colour ; but who ever saw the Ribbon Grass (*Phalaris arundinacea*) run back permanently to its original plain green, grow it how you will and in what soil you will? Or, take the Auricula again. Who ever saw that under any circumstances or treatment as to soil, &c., returning to a permanent green?

"OLD SHOWMAN" says, he has never been able to raise any variegated plants of Pelargoniums from seed, but believes Flower of the Day was so raised ; but I have reasons to think that the latter was not a seedling, but a sport, or, if he will have it so, a "diseased" branch of a Scarlet Geranium which was growing trained at the back of a nobleman's greenhouse a short distance from Richmond. This I do know, that Flower of the Day seeds freely, and I once raised a batch from it and every seedling was variegated, or diseased, from the seed-lobes.

But Mr. Anderson, I think, very clearly proves by one of his experiments that it is not disease any more than the various markings, or spot, or clouds, in a Pelargonium truss is a disease. I will quote his remarks for the benefit of your readers. "Some eight or ten years ago I happened to be on a visit to some relations in Perthshire, and calling at Altamont I was presented by Lady Ballingal with a white-flowered species of the common Scarlet Geranium, a thing I had never seen before, and from which I hoped great things by crossing. I crossed it with Tom Thumb, then and still a very fine kind, and my highest expectations were from that cross ; for I had inverted the cross, making the scarlet species the seed-bearer. From the seeds sown of these respective crosses, the product of the white-flowering kind was utterly worthless ; they were tame, common-looking things with pale washed scarlet flowers, all having common, uniform green foliage. As I set little store by the inverted cross, the seeds I had saved and sown were few. But what was my surprise to find that most of the plants raised were less or more variegated in their leaves, some with uniform marking, others splashed with white colour, and as they got on some showing pure white foliage in some of the shoots, which, however, never advanced far.

"At a loss how this change of colour could arise, I therefore repeated the experiment by again crossing Tom Thumb with the same white-flowered plant ; the result was still more remarkable. I had from twenty to thirty plants, scarce one of which did not show the white variegation in a very striking degree. I lost the greater part of this brood by a servant incautiously throwing the pits (where they were) opened to be aired one severe morning. That this cross of the white-flowered kind on Tom Thumb certainly produced plants with variegated foliage I had ample proof in the two experiments made in successive years."

The above remarks carry with them their own argument. If it is disease—i.e., variegation, whether in Pelargonium or anything else, how is this disease inoculated in the particular cross—that is, by Tom Thumb being impregnated by a white-flowering kind, and not diseased when the white-flowering kind is impregnated with Tom Thumb? Is there not something in the works of Nature that man cannot reach? Truly, there are set bounds in Nature which man cannot overstep.

I well remember some twenty-five years since, that at the residence of the late Robert Clarke, Esq., Lower Tooting, it used to be the system there to stand out, during the summer months, the plants from the greenhouse under the windows of the house. Among other things was a large plant of Fuchsia microphylla, which used to flower and seed freely there ; its round dark berries, looking like currants, was itself an interesting object. The seeds as they ripened would fall indiscriminately round about where the plants stood, and seedlings used to come up by scores. Among others, the gardener, Mr. Northwood, observed one beautifully variegated, and of a more compact growth than the rest round about ; he carefully took it up and potted it, and it grew there for some years. It was of a dwarf compact habit of growth, with a pale cream variegation, and would have made our friend Mr. Beaton say, "Good gracious! Here's a minimum Fuchsia for edgings!" but, unfortunately, it was killed by over or careless watering.

Now, surely, that was not disease, or, if disease, when and where was that disease engendered? Or take our variegated Arabis or Koniga, whichever it may be called, cultivate it as you will—soil, aspect, situation, temperature, in-doors or out—can that be forced back to its primitive green? Or, take a batch of seedling variegated Begonias and try them, will they succumb to the efforts of man, in eradicated their disease (variegation) by cultivation? I do not contend that by frequent crossings by a

plain-leaved kind we might not get rid of their beautiful markings; but I mean solely by culture in different soil, &c.

Or, we may take another familiar example, and ask what is the (primary) cause: is it the effect of disease, of defective drainage, poor or rich soil, or is it some chemical effect produced by nature, and which is beyond the mental grasp of our great vegetable physiologists, much as they have done to raise and bring to light causes which have long laid comparatively obscure? I allude to the Purple-leaved Beech. I think there is as much ground for supposing that to be caused by disease, as there is to suppose that the beautifully-variegated Turkey Oak is caused primarily by disease; and I hold that the cases of variegation in plants, whether the Oak alluded to, the variegated Sycamore, or Elm, and the variegation of Pelargonium, or the variegated Strawberry, are analogous.

Let us, then, try and find out the correct cause ere we jump at conclusions, and call that disease which may not be a disease at all. Is it not probable that the same cause produces the effect in the variegation of plants and in the variation of the Auricula alluded to by "D., of Deal," a week or two since? Will Mr. Beaton be kind enough, as well as many of your learned and observant readers, to take up the matter and give us their ideas on this subject? There is an open and interesting field for discussion; and if we can find out the real cause we may produce effects surprisingly surpassing all we at present have for decorating our flower gardens and ornamental grounds.

I may return again to this subject, and at a future time give my reasons for supposing variegation not to be disease, but in the meantime should like to hear what others say on the subject.—NICKERBOUR.

WORK FOR THE WEEK.

KITCHEN GARDEN.

PLU the fork frequently amongst the growing crops of Cauliflowers, Broccoli, and winter Greens, and continue to manure and trench every piece of ground as it becomes vacant, and plant it with such like articles for late crops. *Cabbages*, reserve and get ready a patch of ground for the sowings to stand the winter; the soil to be of a light sandy nature, and not too rich, as it encourages a luxuriant growth, which is apt to make them tender. *Celery*, prepare trenches for the late crops, water the growing crops, and stir the soil around them. *Cucumbers*, keep up the heat from the linings to them and the Melons. Although we have an average of solar heat this summer, it is better to keep bottom and top heat regular. Cucumbers and Melons delight in plenty of heat to keep them healthy and in regular bearing. Give good soakings of manure water occasionally, and shut up early on all fine days, sprinkling the sides of the frames and sometimes overhead. *Endive*, plant out finally the strongest from the early sowings, and sow also more for late crops; the small Green-curbed is best. *Herbs*, when in flower to be cut and dried for winter use. Choose a dry day, and pull or cut them just as the bloom begins to expand, and spread them thinly in a dry shed, which is preferable to drying them in the sun. When dry they can be tied in convenient bundles and hung up in their winter quarters; but a better plan is to strip off the dry leaves and bottle them. *Onions*, pull up the winter crop if ready, lay them in rows with the roots turned to the sun, and frequently turn them until the stalks are withered, when they will be fit for storing. As they are liable to decay if bruised, they should be carefully handled; let them be very dry when stored, and spread out thin—not laid in heaps. *Peas*, the late-sown to have attention paid to watering and staking. *Potatoes* to be lifted as fast as they become ripe, and their places to be filled with winter Greens. *Shallots*, if they are left in the ground after they are ripe they are apt to mildew: they should therefore be taken up as soon as the tops begin to decay.

FLOWER GARDEN.

The various *Roses* to receive constant attention, such as good staking, disbudding, stopping, top-dressing, or liquid-manuring and budding. *Fuchsias* require much and regular waterings; and it would be well to apply short or neat mulchings, or sphagnum moss, over their roots. Single specimens recently planted in lawns to receive similar treatment. It is a very good plan with the latter to cut out a definite circle of the turf, and to cover the whole surface 2 inches thick with neat pebbles. This will screen the roots and break the action of the water, which is apt to prove injurious by puddling the surface.

FRUIT GARDEN.

Young Peach and Nectarine trees when making very vigorous leaders to have the points of the branches shortened, to be succeeded by other shoots less vigorous, but more fruitful. The Currant bushes to have some of the extremities of the late growths cut away, cutting a handful or two also from the interior of the bush when gross. Layer the Strawberry runners intended for pot culture, as well as those required for making new plantations; all spare runners to be cut away, and the plants to be kept free from weeds. Thin and stop shoots of Figs as soon as they have made a growth of about 6 inches. Remove all useless growth from Vines.

GREENHOUSE AND CONSERVATORY.

The season has now arrived when those hard-wooded specimens which require a second shift this season should have it without delay—at least, before the end of the month, so that the pots may become well filled with roots before the autumn, to be guided when shifting by the strength of the plants; if they are growing robustly give them a liberal shift, but if not a smaller one will suffice. Such stove plants as may have been removed to the conservatory while in bloom, to be returned to a higher temperature as soon as their beauty is over, that the young wood may be ripened before the days get too short and dark for that purpose. Also some of the stove plants that have been recently brought into this house, will require attention to prevent their being injured by damp during shady weather; and it will, probably, be necessary to use slight fires occasionally, for the purpose of drying the atmosphere of the house. The propriety of this will, however, greatly depend upon circumstances, for in small ventilated houses damp will hardly be troublesome, whereas in lofty houses, with but little ventilation, and the roofs overgrown with climbers, it may be very troublesome. As at this season there is no danger to be apprehended from cold, air should be freely admitted on every favourable opportunity using every care to keep the atmosphere of the house as dry as possible, and keeping the plants clear of decaying flowers, &c.

W. KEANE.

DOINGS OF THE LAST WEEK.

WEATHER much the same as before, but a splendid day on the ninth; and the sun acting on a moist, warm soil, seemed to make Lettuces and Cauliflowers in the kitchen garden, and Perillas, Pelargoniums, and Calceolarias in the flower garden, grow by inches, if not as if the fabled wand of an enchanter had been waved over them. Have had a very good supply of *Dickson's Favourite Pea*, and find that after they are introduced, the youngest of Frames, Sangster's, and his worship Daniel O'Rourke, and ever so many more that we have a shrewd guess are sent out from one and the same bag, will be of little use except for gracing the servants' hall. Sent this day (the 10th), a fine dish of *Jeyes' Conqueror*, supposed by some to be anonymous with *Ne Plus Ultra*, and after that will have to act rather knowingly with even *Dickson's Favourite*, the one above being a splendid Pea for colour and flavour, and a splendid bearer into the bargain. The only objection against it for general adoption being its height, as in a dripping season we have required steps to gather it; but then if close-gathered it is almost as continuous a bearer as *Scarlet Runners* themselves. There is so little in common with such splendid Peas and the whole race of early ones, that the man who could introduce a Pea with such a flavour and size and as early as our common early ones, would deserve a statue from the public, and more than a handsome piece of plate from the gastronomic epicures of the generation. Even some of these wise men at the table are sometimes deceived. A chief in these matters passed by a splendid dish of these Peas, so young that they would scarce stand a touch of the fork, and wondered how such large old Peas should be sent to a table where so many knew what was what; and how eloquent he was about the flavour of the Peas he went to Covent Garden and selected himself, getting the basket-woman who shelled them there to riddle out for him all small soft ones; and how next to indignant he looked when the pea-grower courteously doubted his being at all a proper judge in the matter—first, because the sight and not the taste of the far superior Pea was all he knew about it; and, secondly, because from Peas riddled in Covent Garden, after coming there heated and packed in sacks, he knew full well that everything like flavour was banished. We know it is a common thing to twit the gardener in the

country about the fine Peas obtained from Covent Garden, and so there may be, if carried there in their layers for a particular order; but I will allow every gardener in a small place, who is dunned with the praises of what cannot at the moment be put in comparison, to use our authority for saying that the great proportion of Peas obtained in Covent Garden are not fit to be mentioned with those grown in their own gardens, if pulled or gathered before they are too old. If Peas travel a few miles in bags or large hampers, that will of itself destroy the fine flavour. Even when taken to the house at once from the garden, when the finest flavour is desired they should not be gathered long before they are shelled and boiled. It is all very well to shell Peas over night when quantities of older ones are required for us servants; but if such a practice is adopted with what goes to the parlour next day, the gardener need not be surprised if his best Peas should be destitute of flavour. For all the better sorts of Peas we never allow the pods to be pulled so as to injure the plant, and, perhaps, interfere with the roots; but the stalk of the Pea is broken over the point of an open knife, and this is done quicker than even by pulling, and no injury is done to the plant. I lately saw a nice row of Peas with fully a third of the plants flagging and decaying, and the owner was just sending a bundle of queries as to what could be the cause, or causes, of such a misfortune. He promised to use the knife in future. Large, fine-podded Peas require more care in this respect than small early ones. [We know amateurs who cut off every pod with a pair of scissors, and we know the pea-plants continue longer in bearing by such care.—EDS.]

Swept over the *Mushroom-bed* made in the open shed, and covered with a little straw loosely, having a covering of hay and litter above, not so thickly but that the air will pass through it, but thickly enough to keep the extra heat and dry air out, and maintain the surface of the bed in an equable state as respects heat and moisture. If litter, short, and at all damp, is allowed to be close on the bed, the spawn is tempted to run into it, instead of throwing up its Mushroom-heads. Earthed up and slightly covered another bed. The first is doing pretty well, but if the heat it had attained had been allowed to continue a few hours longer, the spawn would have been destroyed. Now is a good time to make *spawn*, as it may be expected to dry rapidly. Much of it is trod and beat out on the floor of a shed, and then cut up into pieces. The following is the plan we generally adopt:—one part of cowdung rather stiff, and one part horse-droppings, the fresher the better. These do admirably of themselves. As the cowdung may not be stiff enough, we generally add one-half part of dry litter, cut into lengths about 1 inch each, and half a part of road-sweepings. Whichever of these materials, they are all beat up and mixed until the heap resembles in consistence thick mortar. We then make it into bricks, having a wooden mould the size of a brick, made of two side pieces and two ends fastened together. The board on which we work is kept wet—a pail of water stands beside us. The mould is dipped into the water, and then placed on the working-board, and is filled from the heap, levelled on top after being pressed, and turned out on boards so as to be easily moved, and put under cover when the weather is wet. Two or three days afterwards, whilst these dung-bricks are lying on their broad sides, two holes are made into each by thrusting a finger into them, or, more lady-like, using a round piece of wood for the purpose. These are for placing bits of spawn in when the bricks are dry enough. A piece of cowdung is drawn over the piece of spawn, so as to be level with the rest of the brick, and after the bricks are turned several times, so as to be dry rather than wet, and which will bear handling well, they are built openly into stacks, and a little fermenting litter placed beneath and around them. These must be looked over as carefully as a Mushroom-bed; for if too cold the spawn will not run well, and if too hot, it will run too much and exhaust itself. The spawn-brick that is white all through, with threads not larger than the finest hair, is just as it should be; 80° may be considered a good average when the spawn is thus running. When a brick is done it should be removed, as if it remains it is apt to be overdone, and in the same heap some will be ready a month before others. Though generally made every year, it will keep a long time in a cool, dry place. We have had fine crops from spawn five years old. Very fine spawn may be obtained from most of the eminent London firms, but we have had bushels sent to us no better for the purpose than just so many bushels of dung; and, therefore, without at all interfering with the trade in spawn, gardeners who are required to have Mushrooms

constantly, had as well make a little for themselves, so as to be doubly sure.

Sowed more Lettuces, Turnips, Radishes, Endive, plain and curled: of the former, Fraser's is the best and hardiest we have met with, in common winters standing out without any protection. Sowed, also, the main crop of Cabbages for next season: planted out Coleworts as room could be had for them; and watered Celery, Cauliflower, Peas, Globe Artichokes, &c., the latter coming in. If when the earliest are cut with merely a couple of inches or so of stalk, other heads will come, and quite as good, from the axils of the leaves left on the stem—at least, they will very often do so. Thinned out and regulated Tomatoes, Cucumbers, Vegetable Marrows, &c. Thinned out Parsley-beds, leaving the dwarfest and best curled, and knocked up weeds wherever they presented themselves, and that is often and frequently enough. No doubt it is all right; but for the necessity of labouring we should soon be poor, sidgetty, melancholy beings.

In the fruit garden, merely repeated the operations of last week, using the finger and thumb among young shoots, and the syringe and engine on the foliage early in the afternoons of sunny days. It goes against the grain when we cannot praise new insect destroyers, as many of our contemporaries do. Gishurst Compound with us has been no better than good old-established washes quite as easily made, cheaper, and less offensive. I find no fault with it, however, as it is useful to a certain extent, and in the hands of other people most likely is more efficacious than with us; but in some cases—as fly on Cherry trees—we found it would not kill the insects without killing the shoot as well; and that many other compositions will do as effectually. If I had a preference I would sooner use tobacco water made from tobacco 1 oz. to a quart or three pints, and as much size as would make the mixture slightly sticky when a little was squeezed between the two fingers. Another evil as respects the Gishurst—and especially if, after dipping the points of Cherry shoots in a strongish solution, the whole tree was syringed with a weak solution, as we might do with weak soap water, or lime water &c.—was that the fruit as it ripened had a nasty taste, which was only got rid of by heavy and frequent lashings from the engine and syringe with clear soft water. The trees and fruit were none the worse for that; but if the weather had long continued wet and dull we should have expected the best kinds of Cherries to crack from the washings, but the dry days at times and the gleams of sunshine prevented all that, and even the largest and finest fruit have scarcely a sign of cracking. This matter of cracking is a sore point with some, and a certain gent. may think he has caught me napping now, who tells me my head should be cracked for speaking of Figs being cracked before they were gathered, as that thoroughly unfitted them for carriage. If our critic's own head had been cracked just enough to let the light of information in, he would have seen that last week I spoke of Figs being gathered for immediate use, and not for packing, which is quite a different affair. We do not find fault with a good Orange that we may buy off a stall, though we suspect that Orange was rather green when gathered; but good as that Orange might be, we would not contrast it with its neighbour which hung on its tree in Italy or Spain until it was at its very best.

Unfortunate as this splitting or cracking of fruit undoubtedly is, it is not always an unmitigated evil. For present use it often presents the extreme of richness, as in the Fig, as stated last week. A slight slit in the side of a large Cherry is a hint its fine pent-up juices should be used. In Melons, a few fissures near the stalk, and these genned with rich, nectar-like globules, are a sign that if thus taken the Melon will be delicious. In general, however, as to keeping quality the cracking is a great drawback, and hence Grapes that are given to crack are for little use, as they generally begin to decompose as soon as a crack is formed. Of the causes of cracking in fruit we cannot say anything precise to-day.

The flower garden has received great attention; the beds have been tied, pegged, topped, and regulated according to their requirements. Calceolarias are in full feather, and Scarlet Geraniums and Variegated very fair for the time of the year. Hollyhocks, in general, will be late. Hedges of scarlet *Salvia* will be early. These latter, as well as the Hollyhocks and Dahlias, have had a little manure water to help them on. Boundary rows of Mink have also been so treated, keeping the water off the foliage. A bed similar to that described for Balsams the other week has been made and covered with light, sandy soil for *Pink*

cuttings, to be inserted about one hundred beneath a common-sized hand-light. The best mode for making these cuttings, best for despatch, best for the old plants, best every way, is to catch each shoot on the plant near the base with the left hand, and about the second joint from the top with the right, then give a sharp pull with the latter, and the cutting comes to you clean out of the joint and socket; and if your bed is loose you may insert the cutting at once, by holding it between the thumb and finger, and gently firming it. We prefer, however, firming the sandy soil and making holes all over it, about 1 inch in the rows, and the rows 2 inches from each other, using a very small dibber like a lady's bodkin for the purpose. This secures the base of the cutting being uninjured by pressure. When the space for a glass is filled, before putting it on we gently throw a little fine sand over the cuttings, which fills up the holes nicely, when a slight watering is given by means of a fine-rosed watering-pot. Picotees and Carnations may be done the same way, but they require more heat to root them nicely. The old plants are much less injured than by cutting the young shoots off; and if pulled out as stated above early in July, the lower buds on the old plant will push freely and make nice shoots before winter, which will bloom in great masses the following summer.

The frequent showers left no excuse for weeds on the *walks*, nor yet for these walks being rough and uneven for the feet. There is no such thing hardly as getting a weed out of a walk when dry and hard, but they come out easily when damp. A few will appear whatever plan be adopted. We have no objection to a little salt, applied in spring or early summer, but we do not approve of using salt in autumn, as it has a tendency to make the walks moist and soft in winter. For this purpose nothing answers better than atreving the salt just as thick as to cover the weedy spots in a sunny day, and especially if you can count on two or three sunny days and dewy nights. Salt water, either hot or cold, will do the work more quickly as to time, but at greater expense and labour. A switch from the broom after such slight weeding and a roll, makes the walk as firm and smooth as ever. When several days are showery, it requires a little weather-wisdom just to hit on rolling shortly after the last shower, as, if done before, the rolling would be labour lost so far as the fine appearance of the walk is concerned. When walks are very rough they should be rolled when the rain almost stands upon them. It is always better to reduce the number of walks, than to have them in a rough, slovenly state.

The *lawn*, too, has had its share of rolling, cutting with the scythe and mowing machines. Some ask me how often a lawn should be cut to look nice. In common seasons once in eight days will keep it tolerable. To be very nice in dripping weather in summer, four or five days will be long enough. There is nothing about a garden more expensive than a well-kept lawn. It is do, do, always do, and nothing but a lawn after all to show for it, and yet some folks expect a place to be kept as cheaply as another place, the kitchen garden and forcing, &c., being similar; whilst in the first case the lawn contains a dozen of acres, and the other place not an acre nor the half of it. True, the *mowing machines* have lessened the expense of cutting, and even those managed by men alone (22 inches wide), are a great saving in labour, when contrasted with mowing and sweeping. Improvements are also constantly being made, and, of course, we welcome them, though the improvement is not always an unmixed advantage. Thus, we got one of Mr. Green's silent cutters, and really in comparison with all those on the wheel-and-racket system, it is a luxury to those who have it working near a mansion. But now I have got myself into hot water about Mr. Green's machine, for I had recommended it to a number, who write to tell me I ought to have known better, as the chain gets too long at one time, and too short at another. Well, I fear there is enough in it to deserve Mr. Green's serious attention with wear and expansion by heat. Our chain lengthened so that it would not go into the cogs of the wheel, and, consequently, had no influence in keeping the knives revolving regularly, and the work was more ragged than a head of hair, steps and stairs, as clipped by a beginner. To remedy this, we have taken out a link some half a dozen times to shorten the chain, and, of course, that requires not merely time but an exercise of patience when you are busy. Yesterday, during the forenoon, the machine worked well. In the afternoon it would not work at all. The chain had lengthened about three-quarters of a link too much, and we knew that if we had wanted to knock a link off, the chain then would have been too tight, and much too tight the next morning; and, therefore, recourse was had to a common

wheel-and-racket one of Samuelson's, which, notwithstanding all the racket, did its work admirably. The comparatively little noise owing to the chain instead of a toothed wheel, is the chief distinctive feature in Mr. Green's cutter, for in other respects the principle of all the makers is identical. I mention these facts as to the chain lengthening to prevent several letters appearing on the subject instead of one, and in hopes that some means may be devised for removing this one disadvantage from what otherwise is a desirable improvement. The noise of the common ones is very objectionable near a mansion.—R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

CUCUMBER GANGRENE (*A Subscriber*).—This ulceration of the fruit, like the somewhat similar disease in the Potato tuber, has puzzled most gardeners. We believe that it arises, like the spot in the Grape, and other ulcerations in forced plants, from the roots not being kept sufficiently warm to enable them to supply the sap required by the rapid development of the fruit and leaves in a high, moist temperature. If the bottom heat in a Cucumber-pit cannot be kept up, the temperature and moisture in the frame ought to be proportionately reduced; and where these balancings of demand and supply are attended to, we know that the fruit of the Cucumber is never gangrened.

BOOK ON BOTANY (*Liada*).—The best elementary book teaching the Natural System, is Henfrey's "Rudiments of Botany," but do not deceive yourself so much as to expect that you can at once identify plants by merely mastering the contents of an elementary work. After you have learned from that upon what the orders, genera, and species are founded, then you require some work upon the genera of plants, and on the species of plants, to enable you to identify them generally. If, however, you wish to confine the attention of your children to *British plants*, then Henfrey's book which we have named, and Hooker and Arnott's "British Flora," would enable any one with the perseverance required to acquire a knowledge of a science to identify all British plants. Impress upon your children that no knowledge worth acquiring can be attained without much thought and much application. The first steps are always the most unattractive, because they involve the fixing on the memory the meaning of strange terms.

DESTROYING ANTS (*L. Pickard*).—The same remedies as are recommended at page 282 of our last Number, will do if scattered upon the surface of the soil in your Cucumber-frame.

BRITISH WILD FLOWER (*W. X. W.*).—The name of your plant is *Erythraea centaurium*.

ROSE CUTTINGS—*VALLOTA PURPUREA* (*A Subscriber*).—The best time to put in Rose cuttings is the last half of March, where there is a moderate froth to plunge them in, and three-inch little side shoots slipped off with a heel, is the best sort of all Rose cuttings, and with the heel no cutting needs to be cut at all. From Midsummer to the end of August is also the best time for very different Rose cuttings—that is to say, cuttings with heels, as in March, but to be put in the open ground, not in pots, but under a hand-light, or even quite free in the open air as most gardeners can do them; but learners cannot do them so cleverly as gardeners, and many of them lose every cutting for the first trial or two. The end of October is the best time to put in cuttings of half-ripened shoots in the open air, and the way to cut them is exactly the same as the cut under a joint for Scarlet Geraniums. Pink and Sweet William, Wallflowers and others, come best from slips, so do Roses; and the slipping is the same in all plants from the Oak to the Pink, and cuttings of all plants do best if they are done as cuttings of Scarlet Geraniums. *Valloia purpurea* is like a Laurel—never goes to rest by losing leaves like Currant bushes. It is more like the good old-fashioned blue broad-leaved Iris, only that it is very thirsty in hot weather. Keep it in a saucer of water out in the open air, and it will yet bloom this season.

DATURA ARBOREA AND DURANTA ELLISII (*M. F.*).—The young shoots of the Datura must not be stopped, as the plant flowers at the ends of the young wood. Your plant will bloom in the autumn, and, after blooming, all the young shoots should be cut back just like a potted Pelargonium. The same soil and the same treatment suit both the Pelargonium and all the perennial Daturas. Cuttings of *Duranta Ellisii* root very freely at this season without bottom heat and in the spring, just like cuttings of Fuchsias. The same soil as you would use to strike Fuchsia, Verbena, or *Caleolaria* cuttings, will do for the cuttings of that *Duranta*; and old plants of it like the very same kind of compost as a specimen Fuchsia for a show would need.

LONDON FLORA (*W. R. X.*).—There is no book that will enable you "to collect" the plants about London, but there are plenty of books which will enable you to identify them after you have collected them. If you are master of the Linnæan System, no book is better than Smith's "English Flora;" if you are master of the Natural System, then Hooker and Arnott's "British Flora" will supply the information you need.

PLANTS TO FLOWER IN WINTER IN A COOL GREENHOUSE (*W. H. M.*).—Hyacinths, Tulips, Crocuses, Snowdrops, Violets, Chinese Primroses and Cyclamens must be allowed to rest in summer. Mignonette sown in July; Chrysanthemums for the early months; Sweet-scented Geraniums, Camellias, Epacris, Cytisus Atteanu, Coronilla glauca, Daphne indica, odorata, and rubra.

LEAF (*W. X. W.*).—It is impossible to tell what genus the plant belongs to, it is so similar to the leaves of many genera.

CRASSULAS GANGRENE (E. W.).—A gangrene is the cause of your *Crassulas* dying down at the bottom of the flowers and the top of the shoots. Pure water from the syringe would not cause this gangrene, only, if too much of it, causing the parts to damp off in the usual way. The roots, probably, have been kept too wet. But when *Crassulas* get so forward as yours were, they should not receive one drop of water over their heads for the rest of the season, and if they never had a drop over them it would be still better. Be very careful if you make cuttings from the diseased plants that no gangrene is on them, for this kind of it is as infectious to plants, as the scarlet fever is to mankind.

STRAWBERRIES.—A white paper box has reached us with Strawberries smashed, and note with all the ink discharged by the acid juice.

CARROTS BLIGHTED (J. R. B.).—We prefer using no manure for Carrots or Parsnips, unless it be dug deep into the ground. To all sorts except the early Horn Carrot, surface manuring has a tendency to make the roots fork. We had a faded appearance to a slight extent, such as that you mention, a year or two ago. We dusted the plants with soot and lime during a dewy morning; washed them with a garden engine next day, and, for a day or two afterwards, whisked the rows with a brick-broom, and saw no more of the pest. We can hold out no preventive, except deep-stirred ground, and precautions in time.

FRUIT OF THE CACTUS (A Reader).—Some people are very fond of the fruit of the Cactus, and others will not touch them because it is not common to do so. The fruit has a peculiar sweetish, ub-acid flavour. We have seen dishes on table of the fruit of *Cactus speciosa*, *speciosissima*, &c.; but, except in a few cases, they were untouched. Except for the hard outside shell of *Passiflora edulis*, the flavour of that and the Cactus is something alike, both too luscious for any one to eat much of. The little fruit of the Cape Gooseberry may also be put in the same category. At one time it was much praised to us, and we were desired to grow some of it; but we do not believe half a dozen of the fruit were ever used at table. The Cactus fruit becomes of a purplish colour and soft when fit to eat. To grow plants from seed, wash the fruit so as to separate the seeds from the pulp, dry the latter on a sheet of paper, then sow in a pot of light sandy soil, covering the seeds slightly, and put the pot in a hotbed if there is one handy. If not, place a square of glass across the pot and keep it near the fire until the seedlings appear, and then place inside of the window, raising the square of glass a little in sunny days.

VARIOUS (Rector).—The index of three or four volumes of this work would give you a clue to all that is useful to know of *Cyanotis vittata*. It is grown for its leaves only, and best in a hanging-basket. It will grow and root in anything, or kind of soil, that ever was used in pots, and it is a stove plant by nature, but a real drawing-room plant the whole summer, and the best way is to renew it every spring. We have seen nine or ten pots of it doing very comfortably out in the compost yard; there they will be till flowers get scarce in the autumn, when the *Cyanotis* plants will take the place of cut flowers and keep it till they are done for towards the end of January. The ladies give them too much water and too little heat, and they die at the roots a long time before they are past use, and then the tops do for cuttings. It is used strictly as an annual. Fortune's Rose is like all the far east Roses. They require abundance of room and exemption from the knife for the first ten or twelve years, then, if the soil is what they like, they will pay for their keep. *Spironema fragrans* is all but a *Clerodendron*; not a very desirable plant according to our very short acquaintance with it.

CUCUMBER FOR EXHIBITION (A Constant Subscriber).—Either the Manchester Improved or Carter's Champion. Any respectable London seedsmen can supply the seed.

NAMES OF GRASSES (W. S.).—1, *Cynosurus cristatus*; 2, *Alopecurus pratensis*; 3 and 5, *Agrostis vulgaris*; 4, *Avena flavescens*; 6, *Dactylis glomerata*.

NAME OF PLANT (H. Taylor).—It is not *Elymus geniculatus*, but *Triticum junceum*, or Sea Rushy Wheat Grass.

FLOWER SHOWS FOR 1861.

JULY 18th. TOWCESTER FLORAL AND HORTICULTURAL SOCIETY. Sec., T. B. Rodhouse, Towcester.

AUGUST 18th. PRESCOT. Sec., J. Beesley.

AUGUST 9th. BELFAST ROYAL BOTANICAL AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Cartthers.

AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.

AUGUST 28th. DEWSBURY. Sec., Mr. Edward Forth.

SEPTEMBER 2nd. HECKMONDWIKE. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmondwike.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) Garden Superintendent, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) Garden Superintendent, G. Eyles.

NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

WHAT TO DO WITH CHICKENS AT THIS SEASON.

NOTHING will benefit chickens (and by that term we mean young fowls, as well as those that still require maternal care) more than to be now put or driven out, as the case may be, on to grass which has been recently mown and harvested. It

also affords an excellent place for hens with chickens. It is fresh and wholesome for them; and the change from the comparative confinement they have suffered while the grass has been laid up for mowing, to the range they will now enjoy, cannot be otherwise than beneficial.

As chickens are growing into adults, and as there are few greater plagues in a yard than a superabundance of cocks, we venture to suggest to our readers the necessity of acting now. Fowls still sell well in markets, and this is the season when poultry is acceptable at every table. The young cocks are now tender and juicy although large. If not killed they *must* be soon shut up, and then they will leave off growing. There is always a disinclination to kill, and it would be easily understood if there were any way of selling them alive; but at their age and at this season there is not. The belief they are too good to kill is a mischievous one; and many a one in March has regretted, when tugging at the sinewy leg of a cock of the previous April or May, that they had not followed our oft-repeated advice, and eaten them while they were tender.

"But such fowls," says our friend, "are too good for the table." "What will you do with them?" ask we. "That is what you must tell us," is the answer.

We frankly tell you we cannot. There is not a sale for all the cocks alive that are bred, not even if they were all food. No one cares to be overdone with that sex—they are bad stock. Of necessity some of our exhortations at this time of year must be dry; they are almost statistical. Keep as many pullets as you will, their eggs will pay for their food; but give us your attention for a moment while we try to back up our advice about the cocks. Your old stock is perfect, and they are now going into moult with every prospect of coming well out of it. Your young stock amounts to ninety-one pullets and thirty-three cocks. As we said before, you declare the latter are all too good to kill—that is, you think they ought to make more than killing price; and if they do that, why the purchasers may use them as they please.

You wish to sell twenty-four cocks for stock purposes, at not less than 12s. each, producing £14 8s. We advise you to sell them at 4s. each, producing £4 16s. Figures would tell against us if you *could* sell, but you cannot. You will try. Let us anticipate the result.

The older these young cocks get, the more troublesome they will be. They ought to be shut up; but where are they to be put? They are no longer afraid of the old bird, and will certainly do him an injury, especially the forwardest bird. He must be shut up. The only spare pen is devoted to him, and it is soon tenanted by six or seven others which have the same pugnacity of disposition towards their parent. For a time they agree among themselves, but there is a day when all begin fighting, and then what a spectacle of miserable creatures. But, admit that they agree, still in February some must be sold. It is always difficult to find a sale for twenty-four cocks; but, admit that four sell for 12s. each, and four for 10s., the rest are unsaleable except at a very low price. They make 2s. 6d. each. Now, these birds have been kept from August 1st to February 1st, twenty-four weeks. Each bird has consumed per week $1\frac{1}{2}$ d., making a total of 3s. They have realised according to our estimate, £6 8s. Deduct therefrom £3 12s. for keep, and it leaves £2 16s. against £4 16s. if sold now. It is in favour of our argument that there is *always* a sale for young poultry for the table, and such are these surplus cocks *now*. The small price at which we imagine the larger number of cocks has been sold, is explained by the fact that they were become nuisances in the yard, and were too old for the table—they could only be sold at a sacrifice. There is no torment equal to too many cocks. Bright, fresh, handsome birds are shut up till they become poor and diseased; the favourites are allowed to run about till they fight with and spoil each other; and that which should have been a pleasure becomes a bore. In poultry, as in everything else, things are never so well managed or taken care of as when there is *only just enough* of them.

SPANISH COCK BROODING—HEN LAYING WITH DIFFICULTY.

In your last week's Number I see a correspondent records the case of a Spanish cock undertaking the care of a brood of chickens. Two seasons since I had two broods of Spanish chickens, and put them with one hen, but the cock undertook

part of her duties—in fact, of the two, was most attentive to them, scratching about for food, and calling them, and nesting them under his wings; and it was at times ludicrous to observe his anxious efforts to effectually cover more than he was able. Ultimately I removed the hen and left him the entire charge.

Some few weeks since I purchased a Spanish hen, and have not yet had an egg from her; she frequently makes the noise peculiar to hens when wanting to lay, and visits and sits regularly in the nest-box—where there are eggs—for about a quarter of an hour, but has never laid an egg yet; she appears quite well, and to the eye nothing seems amiss with her. You will oblige by noticing what you think the best plan to adopt with her.—F. R. PRIDEAUX.

[The hen is, probably, too fat. Dip a quill feather in olive oil and introduce it an inch, or rather more, into the vent. This will, probably, enable her to lay at once; and to provide against such difficulty for the future give her a dessert-spoonful of castor oil, repeating the dose after the lapse of a day, and feed her less liberally.]

BEES AND THOSE WHO HAVE WRITTEN ABOUT THEM.

(Continued from Vol. XXIV., page 63.)

CHARLES BUTLER.

WE have now to trace out the scanty records remaining of a man rarely remembered, but who was one of the best scholars, one of the most original thinkers, and one of the most neglected during that period of mental, religious, and political strife—our Stuart era.

"Charles Butler," says Anthony Wood, "was born at one of the *Wycombs* (*Great Wycomb*, I suppose) in *Bucks*, entered a student into *Magdalen Hall* in the year 1579, took a degree in *Arts*, and being made one of the Bible Clerks of *Magdalen College* was translated thereunto. Soon after, proceeding in that Faculty, he became master of the free school at *Basingstoke* in *Hampshire*; where continuing 7 years with the enjoyment of a cure of a little church called *Skewres*, was promoted to the vicarage of *Lawrence-Wotton*, three miles distant thence (a poor preferment, God wot, for such a worthy scholar, where being settled, he wrote and published books which show him to have been an ingenious man, and well skilled in various sorts of learning."—(*Athenæ Oxoniensis*).

We have searched the records of parishes in and about *Basingstoke*, but with small success. The Vicar of *Wootton*, the Rev. W. B. Wither, in a note obligingly communicated to us, says—"In an old book in the parish chest I have discovered that Charles Butler was vicar here from 1601 to 1650, but can find no record of his death, though I can of some of his children. One was probably the churchwarden. In the catalogue of books left to the Vicar of *Wootton* by Thos. Fenton I find this:—'*Syngeneia*, sive de propinquitatē Matrimonium impediens regula generalis; per C. Butler, e coll: Magd: Oxon et Vicar de Wotton, Hants. 4to.—Oxon—1625.' But I have never seen the work." This work was reprinted at Frankfurt in 1643, in octavo, combined with Fr. Florens "*De nuptiis Consobrinarum prohibitio aut permissis*."

He had previously published a work on Rhetoric, entitled, "*Rhetoricæ libri duo, quorum prior de tropis et figuris, posterior de voce et gestu præcepit*." This he was induced to publish, because a work on the subject had been circulated under his name, but which he repudiated. His volume was published at Oxford, probably in 1601, the preface being dated "*Basingstoke, 5 Ides of March 1600*." It is dedicated to Sir T. Egerton, Keeper of the Great Seal. The 4th edition appeared in 1618, another was printed at London in 1635, and one at Leyden in 1642.

He also was the author of "*Oratoricæ libri duo*," of which one edition is dated 1633, and another 1635.

His "*English Grammar*" was published in 1633, in which he proposed the introduction of some new letters, and the rejection of those superfluous in our spelling, which, he truthfully urged, should be more phonetic. Dr. Johnson, in the *Grammar* prefixed to the folio edition of his Dictionary, gives an account of Butler's *Grammar*, with a specimen of his orthography, and observes that he "was a man who did not want an understanding."

In 1636 appeared his "*Principles of Music*," of which Dr. Burney says it was the only theoretical or didactic work on

music published during the reign of Charles the 1st, and that it contains more knowledge in a small compass than any other of the kind in our language. But, adds Dr. Burney, the Saxon and new characters he uses, in order to explode such letters as are redundant or of uncertain powers, render this musical tract somewhat difficult to peruse.

"He took," says Anthony Wood, "his last farewell of this world on the 29th of March in sixteen hundred forty and seven, and in that of his age 88, or thereabouts (after he had been vicar of *Wotton St. Lawrence* before mentioned 48 years), and was buried in the chancel of the church there."—(*Athenæ Oxoniensis*.) Neither in that chancel nor elsewhere, that we can discover, does any sepulchral monument remain.

"It may be interesting to know," says Mr. Wither in the letter from which we have quoted, "that two of the glebe fields here bear these significant names, 'Waxhanger' and 'Honey-Field.' Did Mr. Butler give them these names?" We wish we had the information which would enable us to respond to these queries.

We have left for our conclusion the volume which entitled its author to a notice in our columns—namely,

"*The Feminine Monarchie, or the Historie of Bees*. Showing their admirable nature and properties; their generation and colonies; their government, loyalty, art, industri, enemies, wars, magnanimity, &c. Together with the right ordering of them from time to time, and the sweet arising thereof. Written out of experience by Charles Butler, Magd." The first edition was printed at Oxford in 1609, and we have seen other editions dated respectively 1622 and 1634. Anthony Wood observes that "it was translated into *Latin* [we have seen an edition dated 1673] by *Rich. Richardson*, sometime of *Emanuel Coll: in Cambridge*, now, or lately, an inhabitant in the most pleasant village of *Brixworth in Northamptonshire*. Lond. 1673. Oct. In this Version he hath left out some of the ornamental and emblematical part of the *English* copy, and hath, with the Author's, scattered and intermixed his own observations on Bees, and what of note he had either heard from men skilful in this way, or had read in other books. But this last translation being slow in the sale, there hath been a new title put to it, and said therein to be printed at *Oxon*, 1682."—(*Athenæ Oxoniensis*.)

With the exception of one by Edmund Southerne, which we will epitomise hereafter, this is the first original work upon bees and their management with which we are acquainted, for we are not possessed of a copy of that to which Butler refers in his preface. It was written, he says, by George Pictor, a physician, the best of writers, and translated word for word into English, by "T. H., of London." If this translation is Thomas Hill's book on bees, then, certainly, it will not endure comparison with Butler's "*Feminine Monarchy*."

The 1st chapter on the nature and properties of bees and their queen, contains the first announcement which we have met with that the monarch of the hive is of the female sex. Aristotle, he observes, and as many as followed him, called the bees' governor *Basileus* or *Rex*, but "the males here bear no away at all, this being an Amazonian or feminine kingdom." He describes the queen very fully and accurately.

In chapter 2 he gives particulars of the apiary, or "Bee Garden and seats of Hives."

Chapter 3 is on "Hives and dressing them." "The best strawn hives that I have seen are wrought by Thomas May, of Sunning, about one mile from Reading, and by William Harper, of Cudsden, about four miles from Oxford." He considered that hives should hold "between five and seven gallons." They were of the old cupola form.

Chapter 4, "Breeding of Bees and of the Drones" shows his knowledge was as correct here as it was relative to the queen. He states that the drones are males, but he thought, as do some apirians even now, that the working bees breed.

Chapter 5, "Swarming and Hiving," gives good practical directions, but the fact of the queen "piping," or uttering a peculiar shrill note premonitory of the departure of a colony, led the musical author of the volume to compose "A *Melissomelos*, or Bees' Madrigal." This, with the musical notes, occupies four pages, and in it, the author affirms, "Musicians may see the grounds of their art."

The 6th Chapter descants on the bees' "Work;" the 7th on "Their Enemies;" the 8th on "Feeding;" the 9th on "Removing Bees;" and the 10th on "Their fruit and profit."

The preface of the edition before us is dated at *Wotton*, May 11th, 1623, and in it he expresses the prophetic conviction that his book, after a while, like his work on Tropes and Figures,

would become well and favourably known. This was no utterance of vanity, but the justified utterance of a man knowing that he was imparting truth, and that truth ultimately prevails.

The work is appropriately dedicated to the Queen of the reigning Monarch, James the 1st, in an address purporting to be from the Queen of Bees, "the most aucient and invincible monarch of the earth."

REMOVING BEES FROM AN OLD HIVE.

In February last I came into possession of a stock of bees in a very old hive. They seemed weak till the latter end of May, so we fed them till near that time; since then, and for the last fortnight or more, they have seemed very strong both in bees and also in honey, but there seems no signs of swarming; and the hive is such an old rotten affair that I think it cannot last another winter. If they had swarmed I intended to have put the swarm in an improved cottage-hive, and also the cast in like manner, joining the whole stock in September to the cast; but know not what to do as they do not swarm. I have another hive full of combs of last year, in which the bees died in the winter. Could they be transferred to that by any means with any chance of success?—H. NIXON.

[Drive your bees at once into the improved hive, and put it in the old stock's place, which latter should be shifted a couple of feet either to the right or left. Repeat the process in three weeks' time with the old hive, and add the bees to the newly-formed community. By this means you will, probably, secure a good quantity of honey free from brood in the old hive, and a strong colony in the new one. See also that they do not want food during winter.]

SKY BEES.

ABOUT two years back, in some fields on the cliffs near Teignmouth, walking with the owner of the property, we heard the sound as of a large swarm of bees. We looked through each fence and examined all the trees, the sound appearing, wherever we were, at about an equal distance from us. Could see nothing of the kind. On application to a countryman who was thrashing in a barn near, he stated that it was "sky bees," or bees which were so high up as to be invisible, but yet might be heard; that they were only heard when dry weather might be expected. The weather on this day was remarkably clear, and anything of the kind could have been seen at as long a distance as the sound would reach. Can you explain? My friend the owner has heard them twice since, once about a month back, the weather then remarkably clear.—G. C.

[We cannot positively explain the phenomenon described by our correspondent. The sound may be produced by wind in the fissures of the cliffs; or it is by no means impossible that an errant swarm may have taken up its abode in some rocky cavity, in the same manner as is usual in warm climates, where an enormous number of bee colonies are said to flourish in the caverns among the rocks; but we rather incline to the opinion that the sound is produced by the passage of the wind over the dry stems of the grasses, and other herbage on the cliffs; those stems emitting sounds like the strings of an Æolian harp. A similar sound, as if emitted by innumerable bees, is heard in hot, dry weather on the downs near Winchester, but no bees are there; but there are millions of the wiry stems of the crested dog's-tail grass, among which the breezes are passing, and to which we have always attributed the sound.]

THE AYRSHIRE BEE MANAGEMENT.

As an amateur in bee-keeping, I have had my attention called to a series of papers in your Journal by "A RENFREWSHIRE BEE-KEEPER," in which he eulogises the management of the Ayrshire fraternity as to the construction of their apiaries and other appurtenances. I therefore felt happy in a business call, which led me, a few days ago, across the country to Cunningham, the northern district of Ayrshire, while I anticipated ocular demonstration of the facts so graphically described by your Renfrew correspondent. I was fortunate in an introduction to Mr. Brown and Mr. Ferguson, of Stewarton, by whom I was favoured with such an exhibition of care, skill and taste, as fully warranted me in endorsing the encomiums of our Renfrew friend, which certainly have not been over but under-drawn.

In crossing the country I did not observe an inferiority of pasture in any locality compared with that of the district of Kilmarnock, Kilmaurs, and Stewarton: I am, therefore, led to the conclusion that the excellence of the supers exhibited in the shop windows of Glasgow, as to purity of colour, absence of brood, and straightness of comb, will at least stand a favourable comparison with any produced in the United Kingdom, and must be attributed to skillful management on the part of the keepers in the above district.

Being only in my novitiate I could not fully appreciate the amount of experimental knowledge of the gentlemen referred to above; but I could understand the scientific ventilation of the hives for the sake of temperature so requisite for purity of combs and honey. I could also admire the tidy filtration of broken comb through coarser and finer woollen sieves, dripping honey very unlike what I have often bought, and which, on standing a few days, produced a consistent sediment in the bottom of the vessel, while on the top floated an oily dark liquid, not unlike kitchen slops.

I would recommend a jaunt to the Land of Burns on the part of the Editor of "The Bee-keeper's Manual;" and an afternoon spent with the Stewarton bee-keepers will afford him a large amount of information, which, if it does not serve as a corrective to his former editions, will, at least, prove a subsidiary that will warrant the sixth edition being stereotyped as a standard work on the economy of bees. I guarantee him a generous and courteous welcome from the Stewarton folks.—WILMOR.

VARIETIES.

PLANTS CULTIVATED IN ICELAND.—In a few gardens Potatoes, Cabbages, and a few pot herbs are managed to be grown in small quantities, but grain will not ripen in their transient and uncertain summer, and must all be brought from the European continent. Even their grass crop is often destroyed by the Polar ice, which in some years embelts the island, occasioning such incessant rain that it is impossible to dry the hay. When this happens famine follows, for on their cows and ewes they principally depend for their sustenance during the long Arctic winter. Dried cods' heads are their only reserve; the bodies of the fish they are obliged to barter for European commodities—bread amongst the number, of which the masses, and only in the parts adjacent to the trading stations, are able to afford more than one meal a-week. The only approach to a corn crop cultivated by the Icelanders, and that only in favoured localities, is what they call Melur, which is *Elymus arenarius*. Its seeds are highly appreciated, and, besides being eaten raw, are made into porridge and thin cakes not unlike a bannock. It is much cultivated at the foot of Mount Kekla, and certainly seemed like matter out of place, springing as it did from the white volcanic sand, on all sides surrounded by lavas and ashes, devoid of the faintest traces of vegetation. Curious to know how it got there, and observing that it always grew on the summit of little sand cones, I asked my friend the farmer. He said it was planted there on account of the warmth and shelter. This species of grass has the appearance of Rye, for which some travellers have mistaken it. The peasants gather it in August, but being seldom ripe it requires to be dried before it can be used.—(Forbes' Iceland.)

OUR LETTER BOX.

EAR-LOBS OF BLACK-BREASTED GAME (A Beginner).—They ought to be roed.

DEATH OF A MOSCOW DUCK (A. B. D.).—The duck was so decomposed we could arrive at no judgment about it. The little we could observe gave no clue to the cause of death. Paralysis in ducks is sometimes caused by the water they frequent. We advise you to keep them altogether out of the water, shut them in a pig-stye, and supply them with a milk-pail full of water. Keep them in confinement till they are thoroughly strong.

LONDON MARKETS.—JULY 15.

POULTRY.

There is still but a moderate supply of poultry, if we except small chickens. Of these latter there are too many. Such is always the case at this season of the year.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	4	6 to 5	Guinea Fowls.....	0	0 to 0
Smaller Fowls.....	3	0 " 3	Leverets.....	0	0 " 0
Chickens.....	2	0 " 2	Pigeons.....	0	8 " 0
Duckings.....	3	0 " 3	Rabbits.....	1	4 " 1
Green Geese.....	0	0 " 0	Wild.....	0	8 " 0

WEEKLY CALENDAR.

Day of M th	Day of Week.	JULY 23—29, 1861.	WEATHER NEAR LONDON IN 1860.							Moon Rises and Sets	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.					
				deg. deg.			m. h.	m. h.	m. h.		m. s.		
23	Tu	Malva.	29.801—29.603	62—42	S.W.	.56	12 af 4	59 af 7	28 a 8	15	6 9	204	
24	W	Prinos.	29.854—29.525	64—39	N.W.	.01	14 4	58 8	45 8	16	6 11	205	
25	Th	St. JAMES. DUCNESS CAMBRIDGE.	29.963—29.914	65—34	N.W.	—	15 4	57 8	1 9	17	6 11	206	
26	F	Cytisus. [DORN, 1797.	29.969—29.818	66—42	N.W.	—	17 4	56 8	16 9	18	6 12	207	
27	S	Gleditschia.	29.821—29.673	71—49	W.	—	18 4	54 8	30 9	19	6 11	208	
28	SUN	9 SUNDAY AFTER TRINITY.	29.721—29.694	74—43	W.	1.39	20 4	53 8	47 9	20	6 10	209	
29	M	Cistus.	29.980—29.789	75—51	N.	—	21 4	51 8	8 10	(	6 9	210

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 74.7° and 51.9° respectively. The greatest heat, 92°, occurred on the 25th in 1844; and the lowest cold, 33°, on the 29th in 1858. During the period 132 days were fine, and on 99 rain fell.

FERTILISATION OF WHEAT.



ANOTHER cross-breeder says that both of us, the Herefordshire Rector, and the writer, are right about the Wheat question, and also both wrong, but declines giving or allowing his name to be given: therefore the question stands yet on the last issue. What I undertook to prove is, that the pollen is discharged in the bottom of the husk before the stamen lengthens; and what the worthy Rector affirms is, that the stamen pushes up the anther, and the anther does not discharge the pollen till the farmer can see it outside the husk, if he looks for it. The man without the spirit of his mother says the Rector is wrong in supposing the pollen is not shed till the anthers are seen outside the husks, and that I am wrong in putting the time too early; but in my challenge I gave up that point for this reason, that some varieties of Wheat might be like varieties of many other plants I cross or look into for the sake of crossing—that is, flower much earlier or much later than others—a point of little practical use. He says out of eleven kinds of Wheat with which he is acquainted, only one comes so early as I (first) stated, and that in three kinds the ears are 6 inches out of the sheath before the pollen is ripe. And there is a second party who saw and understood my “dissections,” a lady, but she will not consent to have a say in it: therefore, if it is agreeable to the Rector, I should like to decide the question another way—that is, get a dozen or fifteen kinds of the best marked Wheat by next October, and two or three of the best spring Wheat, including the Talavera, to be sown next March, the lot to be grown in the rectory garden of Surbiton, for I can calculate on getting a little space there for a point of great interest. The examinations and the result to be entrusted to any one, and to be recorded in this Journal.

MORPHOLOGY.

“It never rains but it pours,” however, and this harvest question was not ripe for the sickle when Mr. Darwin touched the quick to the marrow, in his inquiry after the fashions of the centrifugal flowers in a head or truss. There is a greater harvest to be reaped out of that question than any one of us is yet aware of, or even dreamed about. And the last feather is said to break the back of the beast. “NICKERBO” laid on that feather last week, page 305; and I must say more than ever I intended to say, or else allow my back to snap with the last feather. Well, I have seen two things since Mr. Darwin put the question about the central flower, and one of them has made a revolution in my own ideas on a branch of my daily work—a branch in crossing. And I shall make a clean breast of it to save the back. I saw two flowers growing in one head, and they repre-

sented two good botanical genera. The origin of two genera were in that head. The central flower represented the Geraniums of Europe, and the rest of the flowers were of true Pelargoniums; (the first with regular and the second with irregular flowers (begging pardon of the florists). The flower was the produce of his majesty the king of cross-breeders, and Mr. Darwin may have seen it before this. The other flower was in my own garden, and it also represented two different botanical genera, if not three. It was a deep variety of the dark-leaved Shamrock Clover which I had from Mr. Salter last year. The flowers are those of the white Clover, a Pea flower; but the axis of every head on my plants was disturbed by some strong stimulus. The effect was various, the axis or central flower rose up into a stalk carrying flowers in three different ways, and in one instance the flowers of two genera. One kind had three whorls of the usual flowers, one above the other; one had the flowers panicle fashion; one had the top whorl of four flowers included within one common calyx; and one had the extremity changed into regular flowers.

In order not to be laughed at for such vagaries, I showed the panicle and common calyx sport to Mr. Moore, Secretary to the Floricultural Committee, and I sent the one with the regular flowers to Mr. Wrexwell J. Masters, a good botanist, who is now studying that branch of the science, and would be glad to receive specimens of morphology from any one. His address is Rye Lane, Peckham, S.W. Just send him any out-of-the-way thing you may see among flowers. What he said of that Clover will not rise in judgment against me. “It is of particular interest, inasmuch as the uppermost central flower is quite regular, not papilionaceous at all.”

Now, you take these two instances of this last month of June, and consider them with the two instances now before you, of two cross-breeders having been able to determine that two races of plants can be had from one head of bloom by the pollen of one father, and see what you can bring it to. Mr. Standish had not the faintest idea that I was aware of the vagaries of the same pollen, when he had founded one branch of his own practice on the knowledge of the fact; and what induced me to commit the secret to Dr. Hogg, three years since, was the belief that I should only be laughed at in those days for stating such a simple truth, as it was new—for this world is so prone to the marvellous, that a new idea or a new fact has no relish with it unless it is involved in some most tremendous complexity, and lest I should die before men's ideas were ripe for receiving the thing simply on its own merits. Mr. Standish some years since published the foundation of his discovery in the Journal of the Horticultural Society, without giving the smallest idea of the fact of the pollen part of the process with Rhododendrons. Without much practical knowledge in the crossing of that race, I could then, and much more now, back up every word he said from my own practice in Pelargoniums. I forget the very words, but his meaning was, that you could run the race by crossing till the seedlings could not stand on their legs

and could not be reared. I can do the same thing by the same process with Surprise and Shrubland Scarlet Geraniums, the two strongest kinds now in the race. Well, the two are most extensive families, and they branch off much in the same well-marked features as Rhodora and Azalea in the Rhododendron genus; and as Erodium, Hoarea, Campylia, and the other like sections of Pelargonium. But a great difference meets you on the threshold between these two extensive families when you come to cross them. All the sections, or the genera of old authors, of the Rhododendron cross freely enough; but no one section of the Pelargonium will do so with any other section except, perhaps, a few of the little tuberous-rooted Hoareas, and yet with that great difference the same principle is common to each of them, for the branching out of new races with distinctive habits. Then the question is, Are these two families alone of all the family of plants endowed with this principle? Surely not: the principle in some way or other must pervade the whole vegetable kingdom, and practice will have to discover this principle and its application in a great number of genera before much good can be done with it by speculating theorists, or scientific deductions.

VARIATION OF PLANTS.

But the sharp end of the wedge is in, and we must drive it home before we shall be masters of the mystery of the variegation of plants. Very few indeed can now be convinced by special arguments. I believe, and I have my own long practice to back me, that disease has no more to do with variegation in plants than I have to do with the people of St. Ives. But I believe also that we all know what it is, and that we only differ in the meaning of the expression "disease." If I went a-shooting, broke my leg, and the limb mortified, did I or could I die by disease? I am, perhaps, the healthiest of all gardeners, yet might have died of a disease according to one-half the world—and there is just the root of the question for want of better terms to express it. Every condition of every plant, barring accidents, must be traced to an equivalent in the blood, or the sap as we say. Plants receive all kinds of variegation through their sap. Every gardener knows a diseased plant when he sees it, but no gardener has ever yet seen one diseased plant turn variegated. I happen to know the person who signed his name "AN OLD SHOWMAN," and also the very subject on which he worked; and if I did not know from my own experience the origin and the cause of his plants turning variegated, I confess I should be on the same journey with him. He is a man of great practice with an original turn of mind, and the last man on the turf whom one could call a fast man—in short, the very kind of person to convince one even against his will; but the evidence of the senses is the same as the bare fact, and the fact is, that variegation like the origin of races begins first with the pollen. All the variegation in the hand of "AN OLD SHOWMAN," had that origin, and his manipulation of the plants goes no further than to manifest the fact before its time. I have at this moment the very reverse of his process revealing the very same facts which he stated, and he can see it if he should happen to come to this part of the country. And if he comes to London, I invite him down to see more than one hundred Pelargoniums which I brought under his process on purpose to the verge of life. I caused nine-tenths of their substance to become putrid, and exhorted the tenth part to live and show me how he got his variegation; but as I was quite sure from the beginning, not a single leaf did I turn from its usual way and colour. And if he can get one of my one hundred plants to turn variegated in one, two, or three years, by a second and a third repetition of the same process, I shall give him a Scotch gallon of whiskey for his Christmas, for he, too, is descended of the legions of Montrose.

My belief is this: the variegation of a plant—of all plants—appeared first in the seed-leaf before there were

roots to get it, or what caused it, from the earth, or in some one of the leaves which appeared immediately after the seed-leaf, and while the tiny thing was yet dependant for the chief part of its nourishment on the natural office of the seed-leaf; the seed-leaves in the vegetable kingdom being equivalent to the mammae or teats in the animal kingdom. When the leaves of seedlings are once able to act on the roots the seedling is fit to be weaned. You can do away with the seed-leaves with little or no injury, and once a seedling is weaned no art of man or woman will ever get it to turn a single variegated leaf to the end of time; and if a seedling has had a variegated seed-leaf, or another leaf that showed variation before it had been weaned, and that plant has had two years' growth over the space occupied by the variegated leaf or leaves, no art of man is, or will be able ever to divest that plant of the principle, if I may call it so, of variegation; and after the lapse of a year, or of a generation, that principle will break out when the plant is under some certain conditions. That is what you have to discover—the conditions under which variegation, in a certain family, will surely appear if it is inherent in any one of its members from the seedling state. But that condition may not suffice for a member of the family nearest in alliance, or it may for many families: that part is the mystery.

Mr. Standish can cross any Rhododendron, including the great Nepal tree Rhododendrons, down or up to the verge of variegation, and until there is not a particle of colour in the leaves, and no art of man can grow the seedlings, yet every one of them is in perfect health according to its own degree of existence. The tiny midge is as healthy as the antelope. The seedling which no one can grow is just as healthy as the midge, or as the antelope, according to its own rank in life.

INFLUENCE OF THE POLLEN IN THE SAME FLOWER.

Variegation is a consequence of some condition of the pollen, be it foreign or natural; and the new discovery about the origin of races is the surest witness we have, that to enable plants to continue true and healthy, strong and lasting in their generations, Nature has invested the pollen with the power of keeping up the stock. The strongest and the healthiest plant of a kind is able to take the lead on the stigma over ten other plants that are less likely to do credit to the family name. I have asserted that long enough, and here is the proof out of Baron Hugel seed-pods. I can bring you a plant, a seedling, that will be twice as strong as the Baron, and out of the same truss another seedling that will not be so strong as he, nor like him in appearance; and in another cross, or in a third one, according to the strength of my chief ancestor, I shall show you a plant which, probably, you would not acknowledge to belong to the same section as the Baron, and all from the pollen of one flower.

In the great bulk of the Scarlet or Horseshoe Geraniums there are but seven stamens, four long ones, one of medium length, but which is often wanting, and two almost sessile like the anthers of Wheat—that is, very short indeed, and opening at the bottom face to face. These two are they which reduce a whole family to beggary; first to dwarfs or Tom Thumbs, or better still, to minimums, or the smallest of that kind consistent with vigour sufficient to become a useful plant in cultivation, and, lastly, to the brink of ruin, and drive that race out of existence altogether, if there were not other means provided to arrest the decline, or keep it from manifesting itself at all in a state of Nature.

Now, it is wonderful how simple things are when once we know them; but it is more wonderfully simple how I find out that mystery. You recollect how I said my seeds were sown and labelled; it was by taking every pod or beak from the truss of a Geranium just before the seeds were quite ripe, and planting the pods round the sides of pots, like one row of cuttings. If the pod was full there would be five seedlings to every bunch of them

as they appeared. My number for Baron Hugel is fifteen, and all seeds of the Baron have that number on the face of the tally, and the number of the pollen kind is cut on the edge of the same tally. Now, as my experimental seeds could never get mixed by this method, and, as often happened, the tally with fifteen on the face, and eighteen (Stella) on the edge, showed whole bunches of very stout seedlings, and other bunches with very delicate ones, as appeared to me. There is nothing in these things without a cause, if we did but know it; and I puzzled my brains for two or three years before I discovered the real cause, and I made some of the most foolish experiments you ever heard of in the trials; but as my system of tallying cross seedlings cannot err, and knowing Nature never does in these things, I must and at last did find out the thing, and I hope it will be useful to you. To me it is of more value, as confirming the possibility of the strongest pollen taking the lead on the stigma.

D. BEATON.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 300.)

COLOURS.

IN one of my papers I remarked, that many people when they are going to make up a bouquet will take a great amount of pains and trouble to procure about fifty sprays for it of all kinds of charming little flowers—new kinds of Geraniums and grand new Fuchsias, sprays of Heath and Epacris, and many beautiful flowers besides; and then when the bouquet is finished, and has cost no small amount either of money or time, it somehow or other is not half so striking as we hoped it would be—a great many flowers, very pretty flowers, but “rather crowded somehow,” and not exactly a match, such as flowers should be, with the dress that they are associated with.

Now, I have always been told that in both wreaths and bouquets there should be some one distinct, bright colour, and one generally white, in distinct contrast with it. Sometimes a third colour comes in, too, most charmingly; but this may be or not, and, in fact, the green foundation is in all cases there.

The first great rule then, is, I believe, whatever colour you do adopt, to be most strict in the exclusion of all but the one precise shade you choose. Supposing scarlet and white are to be the colours, having chosen one good scarlet, not the slightest variation can possibly be allowed, not a single flower that does not match the rest, not even a vestige of crimson, and not a shade of pink. In a regularly-arranged shape, at any rate, it would be most destructive, and in any shape each flower put in not of the two ruling shades rather detracts from than adds to the brilliancy of the whole. You can try this by putting two or three purple flowers into a vase of red and white. You will be surprised to find how many more are wanted at once to “fill it.”

For a scarlet and white bouquet this is how I should proceed. Having procured a stiff, bushy piece of small-leaved Myrtle, or, failing that, of the common Box or Privet, I should fasten an end of strong white worsted firmly to the stem, tying in any small stray shoots and making it fairly firm together. In very many cases—if, for instance, the centre flower is a Rose or a Geranium—it is well to dip the foundation in water and then just shake it free from superfluous drops; and besides this precaution the flowers should always be gathered early before the mid-day sun has shone upon them, for if then put in water in a cool, dark cupboard, or under a dish-cover in a cool place, they will last much longer than if quite fresh gathered.

Taking a white Rose, or, perhaps, a branch of Azalea,

or a white Geranium, or a white Chrysanthemum, for the centre flower, I should roll a very narrow strip of thin leather, or of oilskin, or of something else waterproof, neatly round the stem, just turning up the end at last. For Azaleas a touch of gum water or dissolved isinglass put underneath the flower where it joins its outer cup, or calyx, is a great preservative; and for Geraniums I am told a drop let fall into the flower preserves them beautifully.

I consider Roses the worst centre flowers, in a general way, for they are so very apt to shed their petals, and I do not know any means of preserving them by gum. But three or four little bunches of common white Lilac broken from the large bunch and fastened together rather flatly with a short length of fine cap wire (green flower wire is the very best) make a charming dead mass of white, and this flower is so easily forced, too, in the winter season. Next to this I think some drooping white flowers the prettiest of all. White Heath or Deutzia in the early summer season, only about three sprays, and a few little bits of any light lively green. These (flowers and green) having been wound on carefully with the long end of worsted, the next proceeding would be to add a row of pink, or blue, or lilac, or scarlet, or cerise, or whatever the colour is to be, either interspersed with white, when the edges are wished to be broken, or as a geometrical line, which should be most exactly distinct and even.

The Poinsettia is a most beautiful hothouse plant for winter bouquets, and the Begonia fuchsoides almost more so, with its coral drops. Still, when the right idea of colour is once secured, very many pretty effective substitutes may be found. Scarlet berries even, in little tiny groups, common Scarlet Geraniums, or the cerise kinds, while scarlet single Anemones and dwarf red Van Thol single Tulips are about the last flowers one would expect to find useful for such a purpose, and are yet amongst the most brilliant possible, and also the most lasting of all our flowers.

But here I ought to caution any young lady who tries these styles, that she ought just to pass a needle and thread through any berries that she wears, or make them really secure with gum or melted isinglass to a little green silk ribbon underneath the stalk, because they are not otherwise either safe or popular. The Tulips and Anemones, I must also give her notice, will shut up in the dark or during a coldish drive, and will open widely again in the light and warmth.

The colours by candlelight are most beautiful. The pink, and white, and pale blue Anemones are also extremely pretty, and I cannot say too often how much more a *recherché* air is given by artistic taste in the choice of colours, than by a grand assortment of “fine cut flowers” put together “anyhow.”

The variegated foliage is sometimes very pretty in bordering such bouquets. Begonia leaves especially come in delightfully; but where the whole foliage is to be first arranged, keeping a flat head of leafage, the foliage of the Scarlet and Unique Geraniums comes in very well, while the stalk of each separate flower can be thrust down through it. The green does show a good deal with effect, and a red and white border has an extremely good appearance.

Three distinct rows—that is, centre,—first row, second like the centre, and outside mixed, are generally enough, with a pretty fringing edge of Fern or some nice drooping leaves to finish off the whole.

MIXED BOUQUET DESIGN.

I think in connection with the foregoing suggestions, which refer rather to the arrangement of flowers when we have but few appliances at hand, it will be well to describe a mixed bouquet, in which we are chiefly governed by the flowers we have. I am quite sure

this is a frequently occurring case, for which it will be useful to provide; though, of course, it is rather necessity than choice that causes us to have such naturally ill-assorted flowers. Still I have seen them look really well.

We will suppose that we have a basket of Scarlet Geraniums, pink Roses, dark crimson Verbenas, blue and yellow flowers of some kinds, and white ones as well. Some are, in such cases, in the habit of arranging all the less brilliant colours, and then putting in here and there a dash of scarlet, or of bright primrose colour, to enliven all, gradually bringing the brightness up to the edge—thus is to say, increasing the amount of scarlet as it approaches the edge—and this certainly, in some cases, has a decidedly good effect. And though the quantity of flowers used is very great, they are generally of kinds that are so very plentiful that the number signifies but little.

Where a dense mass of flowers can be afforded, every colour in the rainbow may, by a very tasteful arranger, be brought in well. I have heard, for instance, a beautiful "flower-dresser" (French), ask for two morsels of bright yellow, and two or three little pieces of anything that is blue, just because, as she said, she had none of these amidst all her other flowers. She took good care, however, to put at least *two* of each, the smallest dot of colour even though it might be.

Once in a November when a sudden frost had late in a beautiful October annihilated almost every flower within reach of a very sudden demand, I saw one of the best bouquets I remember arranged under difficulties of so grave a kind. Scarlet Geraniums, a few white Roses, and a handful of the common China, were absolutely all the flowers that there were at command. The centre then had one white Rose. I forget whether or no there were four or five sprays of scarlet rather below the Rose level, round it. I fancy that it was in the arrangement I speak of that these appeared. Still, their use must depend a little on their own rich deep colour, and on the paleness of the pink Roses near them. After the centre came the pink Roses, all gathered together with very little green, and then the white Roses were grouped around at nearly regular intervals, filled up with very fresh-coloured green, shading from light into dark. Behind each Rose, too, there was a little foliage; and then came one close, dense mass of Scarlet Geranium, finished by a border of its own velvety leaves. Altogether it looked so pretty and the poverty of the material was at the same time so evident, that I doubt if any one young lady in the room that night did not lament the want of knowledge which had prevented her from rivalling that much-admired style.

There is a Geranium, but I grieve to say I know not its name; it is, however, in itself a bouquet, and it flowers so charmingly all through the later autumn and the winter season, that I know few plants that are more invaluable. It is a low-growing almost creeping kind, with very soft, velvety, dark leaves, quite as dark often as those of a Myrtle, cut into somewhat of an Oak-leaved shape, only hardly so far divided, and jagged in some degree around the outer edge. It is veined almost with black, and the flowers growing on the shortest of footstalks are of a deep rich crimson, veined with black, and very small and close-growing. It is very old, I knew it as much as fifteen years ago, and then we always called it "The Old Geranium;" and it was continually in those days worked on cloth, velvet leaves cut out and laid upon it with a little gum, and crimson cloth sewed with black floss silk for the beautiful little flowers.

~ A bouquet, or vase frame, covered with the beautiful drooping sprays of this peculiarly lovely plant, with its short glowing crimson blossoms starting up amongst the leaves is, indeed, most charming.—E.

(To be continued.)

DESTROYING THE MEALY BUG ON GARDENIA FLORIDA.

I RECENTLY succeeded in cleansing a *Gardenia florida* from that pest called mealy bug. It is a large plant, and has often been subjected to the old system of cleaning by a sponge with a little soft soap and water; but the plant in question, let me be ever so careful, would sometimes have its shoots and leaves disfigured in cleaning. I had a Cucumber-bed made up; and as it was becoming warm, and a two-light box was placed upon it, an idea struck me that as the fumes of the ammonia arising would kill plants if too strong, therefore it might kill insects as well.

I made a large hole in the centre of the bed, and put two bricks at the bottom for the pot to lie upon sideways; for, although the frame was moderately deep, the plant was too large to stand upright. I placed the bricks, because I thought that if the pot rested on the dung the roots might suffer.

I put in the plant, closed the frame, and left it for an hour. Upon then examining it the insects were still alive. I thought the fumes would either kill the insects or plant soon, so I left it in for three hours; I then took it out and examined it again—not an insect was alive, but the plant seemed to have enjoyed the process.

I then, with the garden engine, gave it a thoroughly good washing.

It has often been remarked to me that a *Gardenia*, after it has once become sickly, never recovers again; but it is not so with the plant I mention, for since its immersion in the hot steam of a Cucumber-bed, no plant could look better or be in better health.

Other plants, if the foliage is not too tender or the plant too delicate, might be subjected to the same treatment, which is no trouble in comparison to the old system of cleaning plants with the sponge and soap. If plants were thus treated about two or three times in the year—that is, potted plants, we should not be so annoyed with the appearance of the mealy bug.—J. EASTWOOD, *Gardener to E. Nathan, Esq., Didsbury Lodge, Manchester.*

GREENHOUSE CULTURE OF PELARGONIUMS, ROSES, AZALEAS, AND LILIUM LANCIFOLIUM.

LAST autumn twelvemonth I built a small lean-to greenhouse heated by a flue (aspect south), and stocked it with some of Turner's best Pelargoniums and Azaleas, and a few Tea-scented and other Roses from him and Paul in pots on their own roots. Nothing could have been more healthy than all these plants were during the winter and spring of last year; and up to June or July, 1860, I had as fine a show of Pelargoniums as it was possible to see in so small a space. The Roses also were most healthy and vigorous, without a trace of blight or mildew. Early in the autumn the Pelargoniums were cut back, and put out in the shade till they had started a bit, and then repotted and brought into the greenhouse, where they have remained till the present time; but instead of being healthy bushy plants this spring and now they have been leggy weak plants, and the leaves have presented an unhealthy appearance, many of them turning yellow and dropping off, and almost all more or less tinged or spotted with yellow. Does not this arise from watering them with the sun on the greenhouse, or too near the time of the sun coming out? and ought not the first shoots to have been pinched back? If so, when and how often to prevent their presenting the weak leggy appearance they do? I should add, that during the winter they hardly appeared to grow at all; but when they did they grew very rapidly, and did not commence blooming till near the 1st of June.

The Roses were repotted about the same time as the Pelargoniums, and stood all the winter on the flue, which runs along the front and sides of the greenhouse between the stage and the path; and during the winter I repeatedly observed how much more healthy they looked than the Pelargoniums and Azaleas; but since they put forth leaves and buds they have almost all been more or less infested with mildew, which first appeared on the *Géant des Batailles* struck here last summer, and then spread to the *Teas*—as *Goubault*, *Viscomtesse des Cazes*, *Devonienais*, &c. I have tried flowers of sulphur without effect to stop this pest for the last three months, but cannot get rid of it.

The Azaleas have never been repotted since I bought them in March, 1860, from Turner, until about a fortnight ago, but

they remained all the time in the greenhouse; and though they did not grow much or bloom so well this spring as last, I was tolerably well satisfied with them until near the close of their blooming, when they began to wither in the foliage. They have been since repotted and put into a small brick pit on the Cucumber-bed, but they look worse instead of better. A mixture of sand, chopped and rotted turves and cowdung, well turned and stirred together, is what my man tells me has been used for repotting; and half a dozen roots of *Lilium lancifolium*, which were splendid last year, have all died this winter, and I found the pots in one or two instances full of grubs of which I have no knowledge.

Will you also kindly inform me how the *Cyclamen persicum*, and *Vallota*, and *Lilium lancifolium*, should be treated after they have done blooming?—C.

[In the first place as respects the *Pelargoniums*, you do not tell us what heat and air you gave them, as too much of the one and too little of the other, would, of itself, make them leggy and drawn up. We do not think there was anything wrong in the plants growing so little in winter. Provided they are kept healthy, the less they grow at that time the better. In fact, if the florist kinds had leaves the size of half-a-crown, and healthy, we would much prefer that size to having them as big as half-a-crown, or larger. There may, however, have been something in the pruning and cutting down. Before that is done, we prefer the plants to be kept rather dry, and fully exposed to the sun, and to be kept rather dry and in the sun before the buds break and commence growing. The fancy kinds will not stand so much drying as the more succulent florist kinds. In wet seasons the plants should either be laid down, or protected in some other way from heavy rains. The potting should take place after the young shoots are showing; and, in general, it is best to place in a size less pot, and repot again either before winter or the beginning of spring.

The stopping of these shoots is a matter entirely of circumstances and the object contemplated. Many plants will break so regularly, and the shoots be so numerous, that there is no necessity for stopping any—in fact, there may be need for thinning out some of the weaker shoots. These plants are best for furnishing a regular early blooming, say in May. If, however, it is desired to have a uniform blooming, and moderately early, and two or three shoots come away much more strong than the others, these should have the points nipped out early, that two or three shoots may come from them more uniform, and in strength like the bulk. If the shoots come strong and thin, stopping them all will furnish a plant better. When a succession of blooming is desired from plants rather similar in size, a somewhat regular stopping of the second lot will cause them to bloom some six weeks later. Unless for these particular objects, when the shoots come on a plant thick enough and uniform in strength, it is merely a waste of time and strength to stop the shoots of such a plant. The more stopping will not secure bushiness of growth; that must depend on the plant having plenty of light and air, and not too much heat, say ranging from 45° to 50° with fire heat, and a good rise with additional air from bright sunshine. There may also be something in watering. Until the middle of April it is generally best to water in the morning, say about ten o'clock. From the middle of May to the end of September, it is generally best to water in the evening, for reasons repeatedly given. At none of these waterings should water be placed on the foliage. If from insects or other causes it should be deemed necessary to syringe the foliage, that syringing should be given so that the house should either be shaded, or the foliage be dry before the sun strikes upon them. I need not say that all condensed moisture during the night should also be dissipated by giving air early, so that the leaves are dry before the sun shines on the foliage. Inattention to these matters is a fruitful source of the leaves being spotted and blotched under glass, and a deficiency of air is a chief cause of legginess, especially when shading is also used.

I suspect your *Roses* looked too well in winter—unless you kept them over the fire for the purpose of getting early flowers from them, and in that case you could not expect them to continue fine all the summer. For *Roses* to bloom well in May, June, and July, they could not be kept too cool in winter if they were safe from frost. The more they grew then the more weak would the growth be, and therefore the more liable to insects and mildew. We would take them out of the house, and place them in a dry shady place, and persevere in dredging the points with sulphur and syringing it off in a week or so.

The plants might then stand in an open place exposed to the sun, and if the pots were half plunged all the better. If any soft shoots appeared mildewed they might be nipped off at once, and the heads be syringed with sulphur and soot water. In the beginning of September fresh pot, and in October part prune at least, and keep the plants as cool and dry in winter as would be compatible with safety; and next season you may reckon on fine plants, with good flowers and little or no mildew.

You did right in turning your *Azaleas* into a brick pit, if you can syringe them there, and encourage free growth before the bloom-buds set. We fear, however, from your description of the leaves, either that the plants had got too dry from the water escaping at the sides of the pot instead of penetrating the balls, or that the leaves have become infested with thrips or some similar insect. In either case the brick pit was the place to bring them round, and a good smoking could easily be given if insects were present. In such circumstances, however, we would not have repotted the plants; we would rather have top-dressed, and used weak manure water to stimulate fresh healthy growth, and when that was obtained we would have given larger pots if necessary. *Azaleas* will bloom beautifully in small pots; and when shifted, the roots on the outside of the balls should be gently disengaged, that they may enter at once in the new soil. In a case of bad health it is often prudent to shift a plant into a much smaller pot, and into light sandy soil, after getting rid of all the old soil possible without injuring the good roots. In such a case a close moist atmosphere as your pit would yield from syringing the wall, giving but little air and shading from bright sunshine, would encourage active growth. Whether such treatment applies to your plants we cannot assuredly say, though we strongly suspect it; but we have not a doubt that the sooner you take them out of the sand, leaf mould and cowdung in which you have placed them the better it will be for them. Fibry heath soil, and silver sand to lighten it, are the only materials in which you can hope to recover them. Nothing but the grossest feeders could thrive in the strong food you have given them; and even they would shrink from it if troubled with sickness or indigestion.

The *Liliums* generally keep well in a cellar. If the bulbs were not ripe, they might be killed from being exposed to the frost. The grubs might be encouraged from too much richness in the compost. A rather simple soil and plenty of manure waterings when growing suit these bulbs best. When done flowering, refrain giving water as soon as the leaves decay; the soil, however, should not be quite dry. If the pots are placed on the floor of a shed or a cellar, and covered over with moss or anything of that kind, they will be kept moist enough.

When *Cyclamens* have done flowering, water as long as the leaves keep green. When they decay, set the pots in a shady place, where they will receive hardly any water, and yet not be quite dry. As soon as growth commences, top dress or fresh pot. The *Vallota* should be kept coolish in winter, but not dry, though little water will be wanted. All things considered, I consider that you and your helper have got on very well, and you will do better as you get more experience.—R. F.]

THE FERTILISATION OF WHEAT.

SINCE I last wrote to you on the fertilisation of Wheat, I have taken the trouble to examine the process more carefully: and I am enabled to state positively that the husk opens at the critical moment, and that the anthers then split (apparently with the motion) on rising on their stamens—in fact, that the whole process, exactly as I described it, including the closing of the husk and the shutting out of the anthers, may be watched and witnessed by any person who will bestow a little patience and half an hour's examination.

The anthers may actually be seen moving by starts from their sessile position, and struggling upwards to free themselves; during this they burst, and the pollen may be seen darting out like sparks from a rocket. When they have reached their full height on the stamens they are seen to turn over, and the remaining pollen falls in a little shower outside the husk; the husk then commences closing, and the whole operation occupies no more than five minutes.

I am thus enabled to say positively, though with all due deference to so experienced and acute observer as Mr. Beaton, that he is in error in supposing that the anthers have shed their pollen while in the sheath; and, by way of proof, I have sent to

the Editors a few ears of Wheat in a state to confirm my view of the subject. They will find, and Mr. Beaton may see with his own eyes, fertilised and unfertilised grains in the same ear, long after the ear has risen from the sheath.

I think, too, I am right in saying that the supposition of the fertilisation in the dark, in a close envelope, is contrary to the analogy of the whole vegetable world. If we look at those plants so closely allied to the Wheat, the *Triticum repens* and *Lolium perenne*—the process of fertilisation in their case takes place, without a doubt, as I have described it in that of the Wheat plant; and, even in the case of submerged aquatic flowering plants, such as the *Utricularias*, and several *Potamogetons*, the fertilisation does not take place under water, but the organs are enabled to rise to the surface and expose themselves to the influences of the sun and air during the operation; and these influences, I believe, judging from analogy, to be necessary to the fertilisation of every flowering plant.

Mr. Beaton, I see, supposes that I have never seen the pollen of Wheat. On the contrary, before writing on the subject, I placed the stigmas of several grains under one of Powell and Lealand's most perfect microscopes, which I have been in the constant habit of using for the last ten years and more. Where the anthers were green and immature, no pollen was visible on the stigmas; and on the other hand, after they were protruded from the husk the pollen was most plainly visible. The real size of the pollen grains is, greatest diameter 0.0410 inch, smallest ditto 0.0380 inch. The diameter of the smut spores in Wheat is 0.08330 inch, or about half the size of the pollen.

The fertilised organs of the Mallow, seen by reflected light, are the most beautiful of all this class of objects.

The mystery, however, remains—what takes place after the deposition of the pollen? How is the wonderful swelling of the base of the stigma effected which finally becomes the grain? The fertilisation, strictly speaking, does take place in the dark after the closing of the husk; but what is the manner of it? Is the pollen grain pierced by one of the little horns of the stigma, or do these close round it as I have sometimes seen? No doubt the living germ passes in some way from the pollen grain into the duct of the stigma, as the spermatozoon in the animal creation passes into its own proper receptacle; but what takes place there, probably, no mortal man will ever know.—H. C. K.

—*Rectory, Hereford.*

P.S.—From some cause or other the anthers are occasionally found imprisoned in the husk, sometimes quite enclosed, sometimes nipped by the closing of the husk, while the grain inside is found swelling.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.—It is rather a "come down" from reporting two grand Rose Shows within a few days of one another to chronicle the proceedings of this minor body, particularly as the number of objects brought before it is by no means what was anticipated. The proposal that the promenade days and the committee days should be made to synchronise, may, perhaps, make an improvement, as the objects shown will be then seen by a larger number of persons—one grand desideratum with all introducers of novelties. Partiality in such a body composed of so many elements is plainly impossible; but there is another evil which may creep in, and which is almost indigenous to a large Committee—viz., capriciousness; at one time giving awards with a liberal hand to things unworthy of it, at another refusing it where justly due. One knows how in other matters where we have to do with large numbers this interferes with right judgment, and hence the need of a word of caution. The value of the body is seen, not only from what it rewards with its favours, but also by its rejections; and it is really astonishing to see what rubbish, yes, downright rubbish, is sent by infatuated raisers in the country, who must, indeed, have very large eyes to make swans out of such geese.

A very fine Delphinium was exhibited by Mr. Wheeler, of Warminster, to which the appropriate name of *alopecuroides*, or "like a foxtail," was given, for it was as close and thickly set as any Reynard's brush. The flowers being double, and the habit of the plant dwarf, its very closeness seemed to me to take off from the elegance of its appearance. For this a First-class Certificate was awarded.

From Messrs. Downie & Laird came a new branching Intermediate crimson Stock not better than some out; and from

Mrs. Conway, Brompton, some varieties of bedding Geraniums, &c., much behindhand; and from Mr. Wood, of Bedford Nursery, Hampstead Road, some fancy Pelargoniums, which we might have looked at fifteen years ago.

Mr. Dean, of Bradford, contributed a New Zealand Fern, called *Hypolepis distans*, which will, from its creeping and dumpy habit, be valuable as a pot variety, as it will trail over and cover the sides of the basket or whatever it may be in. For this a Label of Commendation was awarded.

Messrs. Carter & Co., of Holborn, exhibited some specimens of a new double *Clarkia*, very distinct and beautiful, much brighter in colour than any of the older varieties, a rich rosy pink, and apparently quite constant in its double properties. A figure of this will appear in the "Floral Magazine." For this a First-class Certificate was awarded.

The same award was given to a very magnificent scarlet *Verbena*, called *Foxhunter*, from John Miller, Esq., Upway, near Dorchester, brighter in colour than any out, apparently a good trusser, filling up well in the centre, and very large. I measured one pip, $1\frac{1}{2}$ inch across. Equal in size to *Grand Eastern*, but, of course, with a brilliancy of colour it does not possess.

From Mr. Bull came *Phaenopsis Schilleriana*, an excellent thing, but too small to be awarded anything as yet; *Cyanophyllum speciosum*, not so good as the older variety; *Begonia Xeramis*; *Calceolaria Sparkle*, &c.

Messrs. Veitch & Son sent a very pretty *Calandrinia umbellata* major, a rock plant from Chili. For this a Label of Commendation was awarded; as was also a very pretty *Primula* from the snow line of the Andes, and, therefore, quite hardy.

Messrs. Charlwood & Cummins, of Covent Garden, sent a very beautiful variety of *Nemophila*, called *Discoidalis elegans*, with all the habit and appearance of its parent, but with the petals of a rich mulberry edged with white. It was considered very striking, and received a Label of Commendation. This will be figured also in the "Floral Magazine."

Mr. G. Smith, of Hornsey Road, sent two new *Verbenas*—"The Moor," very dark, and *Fireball*, which might have been accepted had not *Foxhunter* been before it. He also exhibited a very nice stand of blooms of various kinds, including *Grand Eastern*, *Garibaldi*, *Madam Zindier*, &c. For this collection a Special Certificate was awarded. He also sent a good plant of his dwarf bedding *Calceolaria* "Canary."

Mr. Melville, of Dalmeny Park, sent several varieties of *Tropeolums* and *Sweet Williams*. Some of the former were very promising as to shape and substance, but more was required to be seen of them before a judgment could be pronounced.

The Rev. George Jeans, of the Vicarage, Alford, sent a box of seedling Pinks, which although pretty were not considered equal to others which have been before the Committee. The same gentleman sent also a very pretty *Delphinium*, said to be a seedling from magnificens.

Some *Achimenes* and other plants were contributed from the Society's Gardens; and it was announced that the next meeting would be held at Chiswick, to examine and compare the various kinds of *Verbenas*, &c., sent to the Gardens.—D., *Deal*.

HOUSE SEWAGE—TRANSPLANTING RHUBARB.

LAST spring I purchased your pamphlet "Muck for the Many," and have acted upon it, by making a tank and bringing every description of drainage from the house into it, and putting down a pump. I find it to be of great service to garden flowers, shrubs, and especially Roses; but I am told here that I have missed it in one point of vegetables, by applying it to Onions. A while ago I had three beds of apparently very nice Onions intermixed with Lettuce; the latter have grown very well, but not hearted very well, and the former are every one now full of a grub, and, of course, gone. The gardeners here tell me that I have brought the grub by my tank water. [Nonsense.] I doubt it, and am more disposed to attribute it to too green manure in the beds in spring. However, all my Onions are gone.

Secondly. My Rhubarb has come very weak this year. I fear I have cut at it rather too hard (having a large family). Would you recommend me to take it up and replant it? If so, when? and would it do with shade?

[Take it up, divide the roots, leaving a bud on each piece, and replant in November or March, giving it plenty of manure.]

The next seems to me the marvel. A gardener here tells me that he has grafted a common Strawberry plant—say British Queen, on the common Dog Rose, and that it has grown and fruited. I never heard of such a thing. Did you?

[The fellow who told you so has insulted you by asking you to believe such a statement.]

Am I doing right in transplanting Carrots on my Onion-beds?
—A SUBSCRIBER, *Altrincham*.

THE ROYAL HORTICULTURAL SOCIETY'S ROSE SHOW.

ADDITIONAL NOTES.

BESIDES the Roses, which of themselves made a grand display, there were several fine groups of elegant-foliaged plants, consisting of Palms, Ferns, Caladiums, Araucarias, Begonias, *Anæctochili*, and others, contributed by the leading London nurserymen, including Messrs. Veitch & Son, Messrs. A. Henderson and Co., Messrs. J. & C. Lee, Messrs. J. & J. Fraser, Mr. Standish, and Mr. Bull. These occupied the central stand and filled up the side table next the glass. Other ornamental plants, which served to give relief to the long lines of Rose-boxes, came in the shape of Fuchsias, Pelargoniums, Petunias, &c., from Mr. Turner, Mr. Gaines, Mr. Veitch, and Mr. Bull. One of the finest subjects shown on this occasion consisted of three pans of the rare *Disa grandiflora*, in exuberant health, one stem bearing four large, perfect, and splendidly-coloured flowers. This came from C. Leach, Esq., of Clapham Park. Some plants which had been exhibited at the meeting of the Floral Committee on the 9th were again brought forward. Among the more attractive of these were Mr. G. Smith's yellow shrubby *Calceolaria canariensis*; a very dwarf double-flowered perennial Larkspur from Mr. G. Wheeler, of Warminster, remarkable for its densely compact flower-spike; and a pretty greenhouse Fern, suitable for baskets, called *Hypolepis distans*, shown by Mr. W. Dean, of Bradford. Mr. G. Smith had some very fine cut Verbenas; and cut Verbenas were also shown by Mr. Turner, who had besides stands of Carnations and Picotees. Messrs. Paul and Son showed some good summer Phloxes. There were three magnificent clusters of Black Hamburgh Grapes from Mr. Young, gardener to Viscount Barrington, and two well-fruited pot Vines of Ingram's Hardy Prolific Muscat, from Mr. Standish. John Hawes, Esq., of Adelphi Terrace, sent a very handsome group of anatomised leaves and seed-vessels; and some charming groups of imitation paper Roses were shown by Mr. Helbronner, Regent Street. Finally, two sets of Mr. March's dinner-table decorations, consisting on this occasion wholly of flowers, Ferns, &c., were shown by Messrs. Dobson & Pearce, of St. James' Street. These were improvements on the original, though of the same design, and were accompanied by some very elegant smaller glasses suitable for bouquets.

A very effective group of garden ornaments in Majolica ware, consisting of seats, vases, pedestals, and flower-pots, &c., were sent by Mr. Phillips, of 155, New Bond Street, all manufactured by the Messrs. Newton & Co.

A collection of meteorological instruments were sent by L. P. Casella, 23, Hatten Garden.

Mr. Scoman, of Stoke Newington, brought specimens of his garden shades, which were set up on the conservatory terrace. This is a simple contrivance for effecting a shade for garden seats or tables. They can be set up in a few minutes, and from their gay colours are very interesting objects in garden scenery.

CULTURE OF THE GRAPE VINE.

(Continued from page 296.)

VINES IN POTS.—There are some advantages in cultivating Vines in pots to bear fruit over the ordinary mode of planting them out in borders; and one is, that the pot Vines may be set to rest earlier and more completely by placing them behind a north wall. When Vines in borders are forced early it is always difficult to keep them at rest in the autumn following, especially if it should be a mild one. I have seen them break their best buds in August or September, and show good bunches of fruit at that untoward season, thus disappointing and tantalising the cultivator; whereas those in pots placed in a cool situation remained quiescent and could be pruned safely at the proper

time. Another advantage is, that those in pots can be brought into the house in succession, and thus in one house the season of fruit-bearing prolonged almost at pleasure. Vines in pots, too, may be taken out of the house when the fruit is ripe, and placed upon the table to be cut and eaten by the company. In such a place they are objects of ornament, pleasing the eye as well as the palate. I have mentioned previously how very easy it is to grow Grapes, provided sufficient heat can be kept up. In a bushel of earth a Vine may be planted, and with proper management that Vine will produce several bunches of Grapes in twelve months. Nay, more, a bud from a Vine may be planted in a small pot in January, repotted and grown on, and will ripen fruit in the next season almost as early as the cultivator may please. It is really astonishing in how little soil the Vine will grow and be productive. For instance, see the Vines in the large conservatory at Chiswick. They have no elaborately prepared border of large extent, but are grown in moderately sized boxes, and yet produce good Grapes annually and plenty of them. I remember visiting, many years ago, the celebrated market garden at Isleworth belonging to Mr. Wilmot. He, as I may say, stuck in Vines anywhere under glass, and they grew and brought forth fruit abundantly. In narrow borders under the footpath at the back of the Pine-pits, scarcely 4 feet wide, he planted Vines which I have seen produce excellent fruit. In taking up old Vines we very often find the roots running down close to the wall, seeking food at home instead of wandering away into the rich and scientifically prepared border for them. Bearing these ideas in mind, let no one that has a few square feet of glass despair of being able to grow Grapes.

To return to pot culture let me remark that the one use of growing Vines in pots is to serve as a help to the border-planted Vines. There are many places where the owner may choose to put up one vine only, and in such a case a few grown in pots will be very useful to produce early Grapes.

If, however, the system of pot culture is practised largely, then a house should be devoted to them entirely. At the vineyard at Garston, Mr. Meredith, perhaps, carries this system to a greater extent than any one else in England; at least he does so more than I have witnessed anywhere. Last March I called there and saw one house filled entirely with pot Vines, the fruit thinned, and fast approaching to maturity. They would be ripe in April. The house was a long narrow one facing east and west, and powerfully heated with hot water on Mr. Meredith's own plan. Close to the wall on each side there is a long narrow border formed, with a flag bottom and flags set on edge, about 18 inches deep. When empty this border looked something like a long horse-trough, where half a regiment of cavalry horses might feed or drink out of. The Vines having been grown in 14-inch pots the previous year, their wood ripened early, and the Vines set to rest early also, they had been turned out of the pots and planted in the borders, and the spaces between them filled with rich compost; this was done early in the autumn, and the forcing commenced very gently, the heat increased as the growth went on. By plunging, as it were, the balls in this fresh compost the Vines put forth fresh roots into it, and were thereby enabled to swell and finish off the crop much better than if they had been kept in the pots. It certainly, at that early season, was one of the finest sights of successful early forcing of the Vine I ever saw.

At Sion House, near Isleworth, the Duke of Northumberland's place, some years ago, I witnessed a successful growing of Vines in pots on a large scale. Mr. Iveson was head gardener there then. There was a long range of wide pits in which Pines had been cultivated. For some reason or other the growing of Pines was dispensed with; and, in order to make those pits useful, Mr. Iveson grew a lot of young Vines in them, got them very strong, and ripened early in the autumn; then he turned out of the pits, pruned them to a moderate length, and allowed them a period of rest. After that he returned them into the pits, placing the pots on bricks as near the front as he could for the hot-water pipes, and commenced the usual routine of culture in regard to heating, watering, stopping, thinning, &c., and a very good crop of fruit he obtained.

I give these examples to show how easy it is to grow Vines in pots, and to show, also, the various modes that good Grape growers adopt in order to obtain fruit from them at unusual seasons. Some of my readers may wish to know what kinds are best to grow in pots. I would avoid strong growers that produce large bunches, such, for instance, as the Syrian, or the Barbarossa. The following are more suitable. *Black-coloured*:—

Black Hamburg (the best of any), Ingram's Prolific, Early Black July, and a few Black Prince. *White*.—Royal Muscadine, Dutch Sweetwater, Golden Hamburg, and one or two Muscat of Alexandria. I might multiply the number of kinds, but the above are good bearers, and, excepting the last, all free settlers. I recommend a few Muscats, because in pots the quality is so excellent. I have grown this kind in pots, and had the berries of a rich deep yellow colour.

I have stated that a Vine may be propagated from an eye or bud, and grown on by frequent repottings and applications of liquid manure for one year, and will then be strong enough to bear five or six bunches the following season. This high culture, however, requires so much judgment, carefulness, and extreme attention, that I would rather prefer recommending the young beginner to either grow or procure a year-old Vines, and train them to bear fruit the following season. It is a safer and more certain method. Supposing then, year-old Vines are selected to grow for the purpose, let them be ripened and put to rest as soon as possible, and six weeks previous to commencing growth prune them down to two buds; two are better than one for fear of accidents. Then pot them in a rich compost of three parts turfy loam, one part lumpy dung, a few pieces of charcoal, and a little lime rubbish. Mix these all together, leaving them in as rough a state as possible. Put them in large pots, rather deeper than ordinary, and from 12 inches to 15 inches wide. Drain well, and put some small bones and inch-square pieces of green turf upon the drainage. Then set in the ball, nearly entire, and pack the compost around it till the pots are full. Press it down firmly, and then it will leave sufficient space to hold water. Commence to grow these pot Vines as early as convenient, certainly not later than March, in order to obtain ripe wood early in the season. Train them up to within a foot of the glass, and when the shoots are 6 feet or 7 feet long, pinch off the end to strengthen the lower leaves and buds. The uppermost bud will break again, and let it be trained forward 3 feet or 4 feet further, and then stop it again, and keep the end stopped after that till the year's growth is perfected. The laterals must be stopped at the first leaf, and kept stopped at every succeeding leaf. When the wood begins to turn brown, cut all the laterals off pretty close to the main shoot. If required for a very early crop, the pots should be set out of doors behind a north wall in July and pruned in September. Cut them down in proportion to their strength, or according to the space they will be required to fill, but never exceed 6 feet or 7 feet in length, however strong the Vines may be.

Now, if you have the convenience, a little bottom heat of 70° or 80° will be useful, but this bottom heat, though certainly beneficial, is not absolutely necessary. The internal heat of the house will answer nearly as well. When the buds break and bunches are visible, stop each shoot close to the bunch, being very careful not to injure the leaf opposite. The after-treatment is similar to that I have described for Vines on the rafters in the stove—the stopping the laterals, thinning the bunches, and thinning the berries on each bunch, keeping up a moist atmosphere in the earlier part of the forcing, and a drier atmosphere when the fruit begins to show colour, &c. There is one peculiarity however, different in pot culture to border culture—and that is, as no wood for the succeeding season is required, all the strength of the Vine may be thrown into that year's crop of fruit. By this it will be understood that I do not recommend fruiting the Vines twice in the same pots. I would rather grow more young Vines and prepare them for bearing the next year than attempting to get a second crop from those that have borne fruit. I have tried them repeatedly, and so have others, but the success was very partial indeed.—T. APPELEY.

(To be continued.)

VARIATION IN SEEDS OF THE SAME PLANT.

To prove a lot of Orange Globe Mangold Wurtzel received early in the season from the grower, I sowed twenty seeds or seed-pods, and was surprised to see come from one pod three plants, one of which was a bright red, the others true to their kind. There could not have been any mistake, as the pod was pushed through, and above the soil, by the united efforts of the three plants, the points of whose leaves remained enclosed in the pod for several days after the plants were up.

Now that the question of cross-breeding and hybridising has become so important, I thought this fact might be interesting,

and I shall be glad to learn if such instances are common.—WILLIAM FOSTER, JUN., *Stroud*.

[It cannot be said in this instance that these three plants came from the same pod or fruit, as in Mangold Wurtzel the ovary is only one-celled and one-ovuled; what therefore appears to our correspondent as one "pod," was, in reality, three distinct seed-nuts (speaking botanically) the product of three separate flowers. We are much obliged to him, however, for his communication, which records an interesting fact nevertheless, and may serve as a lesson to those who often unreasonably complain that seeds are mixed.—Eds. J. of H.]

FERNS UNDER GLASS.

(Concluded from page 262.)

No plants are more easily grown than Ferns, but we have found out also that they are as readily killed—at least such has been my experience.

The following list contains only those we have grown ourselves, or have often seen growing in a house such as we have attempted to describe:—

D, is for deciduous; E, points out such as should be planted high so that their roots can run on the rock stones; 1 ft., &c., shows the height in feet the several plants attain when of specimen size. All of them will thrive and do well in the house described.

TREE FERNS.

	Native country.	Feet high
<i>Alsophila australis</i> .	New South Wales	6 to 10
<i>excelsa</i> .	Norfolk Island	10
<i>radens</i> .	Brazil	4 6
<i>Amphicosmia</i> (<i>alsophila</i>) <i>capensis</i>	... ..	3 11
<i>Cibotium Schiedei</i> .	Mexico	7 9
<i>Cyathea dealbata</i> .	New Zealand	6 8
<i>medullaria</i> .	New Zealand	8 12
<i>Dicksonia antarctica</i> .	Van Diemen's Land	10 12

Tree Ferns are found growing in very moist or boggy places, and sometimes the places where they are covered with water; the soil about them, therefore, should never be allowed to become dry, or a partial, and sometimes a total, loss of its fronds will follow.

DWARF FERNS.

<i>Acrophorus hispidus</i> , E. (<i>Microlepia nove-zealandiae</i>).	New Zealand	1½ to 2
<i>immersus</i> , D.	East Indies	1 2
<i>pulcher</i> , D. (<i>Leucostegia chærophylla</i>).	East Indies	1
<i>Adiantum affine</i> (Cunninghami).	New Zealand and Norfolk Island	1
<i>cuneatum</i> .	Organ Mountains and St. Catherine's, Brazil	1 1½
<i>ethiopicum</i> (assimile).	New South Wales, Tasmania, and New Zealand	1
<i>formosum</i> .	New South Wales and New Zealand	2 3
<i>sulcum</i> .	New Zealand	1
<i>hispidulum</i> .	New Zealand, Australia, Ceylon, and Mauritius	1 1½
<i>tenellum</i> (pubescens?).	Australia	1
<i>pulvinulentum</i> ?	South America	1
<i>reniforme</i> .	Madeira, Teneriffe	1 ½
<i>asarifolium</i> .	Mauritius	1
<i>setulosum</i> .	New Zealand and Norfolk Island	1 ½
<i>Anemidietyon phyllitidis</i> .	Tropical America and East Indies	2 3
<i>Asplenium Aitoni</i> (<i>ambrosium</i>).	Madeira	2 4
<i>axillare</i> .	Madeira	3
<i>hifidum</i> (<i>fontinalaceum</i>)	... ..	2
<i>brachypterum</i> .	Western Africa	2 ½
<i>bulbiferum</i> .	New Zealand	2 4
<i>candatum</i>...	... ..	3
<i>compressum</i> (<i>fecundum</i>).	St. Helena	2
<i>dimidiatum</i> (<i>zamiacifolium</i>).	Venezuela	1
<i>dimorphum</i> (<i>diversifolium</i>).	New Zealand	2
<i>dispersum</i> .	Tropical America	1
<i>foaleatum</i> .	New Zealand	1½
<i>flabellifolium</i> .	Australia	1 ½
<i>flaccidum</i> (<i>odontites</i>).	New Zealand	2
<i>Hemionitis</i> (<i>palmatum</i>).	South Europe	1
<i>multidum</i>...	... ..	1
<i>heterodon</i>...	... ..	1½
<i>lucidum</i> .	New Zealand	3
<i>monanthemum</i> .	Madeira	1½
<i>proliferum</i>...	... ..	1
<i>nitidum</i>...	... ..	1
<i>obtusatum</i> .	Tasmania	1 ½
<i>otites</i> .	Brazil	1
<i>polymorphum</i>...	... ..	1 ½
<i>Premorusum</i> (<i>fureatam</i>).	Madeira and Tropical America	2 3
<i>læcetatum</i> .	South Africa and India	1
<i>reclinatum</i> .	St. Helena	1
<i>rhizophyllum</i> .	Tropical America	—
<i>sera</i> .	Tropical America	2 3
<i>Veitchianum</i> (Belangeri).	Java	2
<i>Wagnerianum</i>?	... ..	2
<i>Blechnum braziliense</i> .	Brazil	3 4
<i>corcovadense</i> .	Brazil	3 4
<i>cognatum</i> (australe).	Tropical America	1
<i>Gilliesii</i> (Lomeria).	Chill	2
<i>gladulosum</i> .	East Indies and Brazil ... ..	...

Native country.	Feet high
Blechnum lan. Brazil	2
occidentale China (Hong-Kong)	2 to 3
Brainea iostig (malabarica). East Indies	4
Callipteris al. angustifolium. Jamaica	1 1/2
Campyloneur. South America	1
ten (duoi). Tropical America	1
lucidum. East Indies	2
nitidum. West Indies	2
phyll. bamensis. Southern United States	1 1/2
Chellanth. Siberia! Lake Baikal, and Altai Mountains	1
argentea (nigra of some). High mountains of Mexico and Peru	1
frag. South Europe	2
frag. (tenuis). East Indies and Australia	1 1/2
lencera. Mexico	1
pr. Namaqua Land (South Africa)	1
sp. bilis (chlorophylla). Brazil	3
(This has drooping fronds, plant high.)	
Cheilophes should not have the fronds damped with the syringe at any, and should be kept moderately dry at the roots during winter. Fronds must not be allowed to flag from excessive dryness; they will recover if that occurs. Plant near the glass.]	
Cibum Barometz. Philippine Islands	8
Davallia baillata, D. E. Nepal, Assam	1
canariensis, L. Canaries	1
isocarpa, E. Malay Archipelago	14
degans, E. China, Java, Trop. Australia, Tahiti, & Madagascar	1 1/2
solida, E. Pacific Islands and Java	8
Dioscorea cuculata (Balantium cuculata). Madeira and Azores	6
Dioscorea lunulata (truncatula). Malay Archip., Trop. S. Amer.	3
Dipazium decussatum (lasiopteris)	1
Thwaitesii. Ceylon?	1
Dynaria diversifolia, E. East Indies	2
Ephragmosum conforme. South Africa	1
crassifolia. Australia	1 1/2
Geichia crinalis. New South Wales	3
dicarpa. New South Wales	2
dirichotom. West Indies, &c.	5
strobilata. New South Wales	6
sp. unca (glaucenscens?). New Zealand	4
Goniophlebium appendiculatum (scriptum). Mexico	1 1/2
Catherinae (glaucum)	1
latipes	24
loricatum	1
menisicifolium. Brazil	3
Goniopteris Fosteri	2
Grammitis (Leptogramma) rupestris. Tropical America	2
totta (rufaefolia). Australia	2
Hymenophyllum crispatum. Tasmania	2
demissum. New Zealand	2
flabellatum. Tasmania	2
rarum. Tasmania	2
scrabrum. New Zealand	2
tunbridgeense. Madeira, S. Africa, Chili, Brazil, and Tasmanian unilateralis (Wilsonii). Britany, Cape of Good Hope, Bourbon, Tasmania and Chiloe	1
[The "filmy Ferns" require very moist air. Plant them just within the wells, cave, and waterfall on each side. Some sphagnum (white bog moss) should be added to the soil where Hymenophyllums are to be planted; 2 inches or 3 inches depth of soil is enough. Keep the stones about them saturated with water by sprinkling them with a syringe two or more times during the day. If grown in the open fernery they must be covered with a bell-glass that has a small opening (hole) at top. Water will be required abundantly.]	
Hypolepis amaurorachis. Australia. (Drooping fronds, plant high)	2
tenuifolia (repens and Dicksonioides). West Indies	3
Lastræa acuminata	1 1/2
angustens. Cuba	3
canariensis	4
decomposita (Nephrodium). Australia	2
elongata	2
glabella. New Zealand	1
hlepidia. New Zealand	1
quinquangularis (pubescens). Jamaica	2
patens. Tropical America	1 1/2
remissa. Ceylon	1 1/2
serra	2
tenericaulis (triedes)	3
Litobrochia aurita	5
denticulata. Brazil	1 1/2
incisa (vespertilionis). Australia and New Zealand	4
leptophylla. Brazil	2
palmaria (doryopteris)	1 1/2
sagittifolia (doryopteris). Brazil	1
Lomaria alpina. Tasmania, New Zealand, and Straits of Magellan	1 1/2
heterophylla	2
discolor. New Zealand	3
magellanica. Patagonia	2
(Said to form a trunk 4 feet high on the Organ Mountains.)	
nuda. Tasmania	1
Patersoni. Tasmania	1
Lygodium hasatum (volubile) Climbing, not more than 2 ft.	
japonicum. Japan Climbing	
palmarum. North America Do. not more than 2 ft.	
scandens. Tropical America Do.	
venustum (polymorphum) Climbing	
Nephrodium molle. Tropics generally	3
ecorymbiferum	2
unifolium. Tropics	2
Nephrolepis exaltata, E. Tropical America	3
pectinata. Tropical America	5
tuberosa, E. East Indies	2

Native country.	Feet high
Niphothalus lingua, E. China and Japan	1 1/2
pertuus, E. East Indies	1 1/2
rupestris, E. Australia	1
Nothochlæna canariensis (Marantæ). South Europe and	1
Madeira	1
Eckloniana. South Africa	1 to 1 1/2
hypoleuca. Peru	1
levis. Mexico	1
laugiosa. South Europe and Algeria	1 1/2
vestita. Southern United States, California, and Oregon	2
Oneychium japonicum. Mountains of Japan	2
Phlebodium aureum. Tropical America	3
Platynerium alciorne. East Indies and Australia	2
grande. Australia	2
(If the two last be planted on either side of the waterfall, or anywhere about 6 feet high, they are effective.)	
Platyloma Brownii. Australia	2
falcatum. Australia and New Zealand	1 1/2
rotundifolium. New Zealand	2
Pleopeltis irioides (microsorium). Mauritius, E. Indies, and Australia	2
nuda (Dryaria Fortunii). China	1
pastulata, E. (dryaria). New Zealand	1
squamulosa, E. Brazil	1
stigmatica, E. Tropical America	1
Polypodium drepanum. Madeira	1 1/2
effusum	3
pectinatum. Tropical America	2
rugosum. Australia and New Zealand	1
spectabile	4
Polystichum capense. South Africa	4
coriaceum. East Indies	3
flexum. St. Juan de Fernandez	1 1/2
proliferum. New Zealand	2
triangulum (mucronatum)	3
vestitum. New Zealand	1 1/2
Pteris arguta. Madeira	2
crenata (chinesis). East Indies and China	2
flabellata. South Africa	4
geraniifolia. East Indies and Polynesia	3
hastata. South Africa	3
macrophylla (adiantoides). South Africa	3
longifolia. Tropics	2
repandula (flosoma). Jamaica	2
scaberula, E. New Zealand	1
semipinnata. East Indies	2
serrulata. East Indies	1 1/2
tremula. Australia and New Zealand	3
umbrosa	3
Sitobolium davallioides, E. Port Jackson	4
rubiginosum, E. Brazil, Mexico, and Peru	5
Thamnopteris nidus (Neottopteris nidus). Australia and E. Indies	6
Todea barbara	3
pellucida. New Zealand. (See Hymenophyllum)	2
Trichomanes radicans. Ireland and Madeira	1
reniforme. New Zealand	1
venosum. Tasmania, New South Wales, and New Zealand (See Hymenophyllum.)	1 1/2
Woodisia mollis. Mexico	1 1/2
Woodwardia aspera (Doodia). Australia	1
caudata (Doodia rupestris). Australia	1
lunulata. New Zealand	1
media. Australia	1
radicans. South Europe, North India, and California	3
Selaginella (Lycopodium)	4
stolonifera, S. Martensii, S. formosa, S. dichotoma, S. Galeottii (S. hottii), S. uncinata (easia), S. densa, S. apus (apodum), S. apotheca, S. brasiliensis, S. obtusa, S. helvetica, S. denticulata, S. Burghallii, S. Willdenovii, S. cuspidata, S. cuspidata elongata (cordifolia).	
(S. denticulata is the most useful of the above; it will grow anywhere where there is moisture on the stones, &c.)	
—GEORGE ABBEY, Gardener to E. Hailstone, Esq., Horton Hall, Bradford, Yorkshire.	

GARDENING SUNDRIES.

I HAVE a lean-to house standing endwise, N.W. by S.E., 20 feet by 12 feet wide, which I intend keeping solely as a vinery. I have planted, by the recommendation of a nurseryman, three Black Hamburgs at the N.W. end, and three Muscats of Alexandria at the S.E. end. Can I grow, or rather ripen both sorts in the same house? Will there be sufficient room? All the Vines are planted within the house, which is to be heated with Monro's cannon boiler.

What system of pruning am I to follow? The Black Hamburgs were planted May, 1860; they have been cut back three times—once at the nursery, then 1860, also 1861. Two of the Vines now have single rods, 14 feet long, under the rafters; the third has two rods not quite so strong. Am I to allow them to bear next year? I have stopped all laterals, and the wood appears to be well ripening.

Would you give me a few hints, or recommend me a book on the pruning, &c., of the Vine, which a novice in gardening might understand? I have been recommended a small book by Sanders; I do not know the publisher, or whether it would

do for me. The Muscats were planted this year and have not done much.

Would the Pampas Grass do for the centre of a Rhododendron-bed which is to be surrounded by rock stones?

Mr. Paul, in his catalogue of Roses, describes Madame Vigneron (H.P.) as "rose, large and full." Mr. Rivers describes it, as "silvery rosy lilac." I sent for it last year. The Rose I have blooms profusely in clusters, rather small, very full, slightly cupped, white, with a shade of blush; leaf and habit do not appear to be H.P. Have I the right Rose?

Mr. Rivers recommends buds to be untied after twenty days. Is not that early? Last year many of my buds lived for six weeks and two months, and then died before the frost set in. Can you tell me where the fault was?

I wish to make some alterations this winter, which will occasion transplanting trees and shrubs. Will October do for removing bush Apple trees and pyramidal Pear trees. They are good size trees, and have been prepared by root-pruning last winter; they have been root-pruned three times in six years? An Arbor Vitæ hedge, planted four years, now 8 feet high, I must move—when would be the best month? and what previous preparation should I make? Would exposing the roots for some little time do good?

I am going to make a Rhododendron-bed. The proper sandy peat I cannot obtain, so I must collect together a compost which shall act as a substitute. We are on a clay soil, and is rather difficult to obtain—would burnt clay to a good ash do instead? Should I get the sand, which would be from the seashore, would the salt in it be objectionable to the Rhododendron class?

How long does *Gazania splendens* remain in bloom?—J. A. P.

[With six Vines. The stems, after allowing about 2 feet from each end, will have a trifle more than 3 feet between each of the rest, which will do if the house is kept for Vines only.]

You may ripen Muscats and Hamburgs in the same house, but it would be as well to have most heat at the end of the house where the Hamburgs were planted; and if you did not intend forcing early, it would be advisable to keep the Muscats back by plenty of air, so that there would be a good deal of sun heat before they came into bloom.

The Vines would be better if grown to a single rod instead of two. The rods, now 11 feet long and strong, we would cut down to 4 feet or 5 feet next winter or spring. Unless you have been giving them fire heat, it is quite early enough to have removed all the laterals. In your case we would prefer the spur system of pruning. The whole modes and rationale of pruning on either spur or rod system have lately been detailed by Messrs. Fish and Appleby. We do not see how it could be made simpler, but if you tell us your particular doubts we would try. Sanders' work on the Vine is very good, and so are many more. The Muscats you should encourage to grow, and then keep the house warm and dry to ripen the wood well in the autumn. Do not take a crop off even the strongest Vines at first; be satisfied with four or five moderate bunches from each at most. If the Muscats do well cut down to a foot or two, and take not more than a bunch or two next season if they give it.

The Pampas Grass will do for the situation; but why not have a bed for the Rhododendrons, and give the Pampas a knoll for itself.

People often vary in the description of a Rose, we do not know it—will some friend decide? But why not ask Mr. Rivers? That gentleman's practice as to unloosening buds is all right in general circumstances. Some buds are longer in swelling than others, and much depends on the time, the fitness of the stock, &c.; and simple though it seems, many persons never can bud successfully. Here, as in other matters, practice makes perfectness. Though moderately successful, we should not expect to rival a Rivers, nor a Paul, Francis, Lane, &c.

October will be a good month to move all the trees. If you could begin early in the month, or by the end of September, we should not trouble in giving the Arbor Vitæ any preparation now, as they generally lift with fairish balls; but if there is any difficulty in digging well round them, so as to trace the roots, it would be a good plan to dig as far as you could, and cut the large roots, and replace the soil, or rather leave the space open and cover on the top to keep out light and air; but in ordinary circumstances it is hardly worth the labour. If these trees need any pruning, it should be done now, and the young shoots will be coming before lifting-time.

For Rhododendrons we would prefer exposing the clay, so as to

pulverise it, and then mix leaf mould with it at planting time: this will be better than burning it. Cover with a dressing of rotten leaves. We have little hopes of the sea sand, as, if other sand cannot be had, burn part of clay.

The *Gazania* blooms last longer or shorter according to the weather. See what Mr. Beaton says about the hydron belt. Splendens keeps open without this artificial process longer than some others, and some varieties of it will be open on a day when others are shut. Rather too many inquiries at once.

MAGNOLIAS INJURED BY FROST.

I SHALL be much obliged if you can advise me what to do with two *Magnolias grandiflora ferruginea*. They are fine plants, about 30 years old, trained against the house and reaching the second floor; the soil gravelly, and aspect west. They were, apparently, killed by the severe winter; but, within the last few weeks, several small sprouts have appeared on the stems, from about 6 inches to 4 feet from the ground. Should the trees be cut in, and if so, how close to the sprouts? Or is there anything else that could be done for them?—M. H.

[These *Magnolias*, and scores like them, with the hundreds of other kinds of trees which nearly perished by the frost, and are showing signs of life in July, only a few feet above the collar of the roots, should be cut down now at once to the very last ring or inch of their stems, or the collar, as we call the part where the roots run from downwards, and the stems start from upwards. That is the plan to cut half-dead and three-parts-dead too; but if this collar part is dead itself there is no chance, unless the roots are alive and are of those which make suckers or cuttings. So cut your *Magnolia* down to the collar, and if you get shoots keep three of them only, and only one after the first twelve months. The other two are to have two strings to your bow; for if two should die, as often happens in such cases after a few months' sucking, why you have one still to go on with. When your one or three shoots are 6 inches high mulch or "mould" over the old stem or stump, and let the shoots be 4 inches deep in this mulching and they will soon root into it, and that will enable you and them to cover the wall again in "half time," as the young wood will be fed by the conquered old roots, and by their own independent ones; thus has a range from Caithness to Cornwall, and over 500 kinds of woody plants.]

AMERICAN BLIGHT.

IN reply to your correspondent "S.," in THE JOURNAL OF HORTICULTURE of July 9th, respecting the last winter's frost as to its effect upon the American blight, I beg to say the pest is as abundant as ever here, more especially upon my drooping Larches. Heretofore I had written to different parties for instructions as to a remedy; but the result has invariably been that no practicable method was known, that it was either too expensive, or that its application would be fatal to the patient. However, my patience, after trying very many prescriptions, gave way as I found the evil rapidly increasing, and I cut down a fine specimen of true drooping Larch 10 feet high, the branches extending in a circle 24 feet in diameter. As I supplied plants some years ago to many in the trade, to private parties, and also some to the Continent, it would be interesting and gratifying to hear that their trees are not thus infested.—WM. GOSALL, Hereford Nursery.

HERBACEOUS PLANTS.

MR. APPLEBY'S list of herbaceous plants will be hailed as a boon by all lovers of gardening in the present day. Now, if we could only get him in a humour, at his leisure, to pen a few articles on the subject of herbaceous gardening, he would confer a great benefit on the million, who only want an able advocate to set them going.

I can positively affirm that the only herbaceous garden I have seen of late, worth looking at, was that of a village blacksmith, a man living nearly one hundred miles from London. He could sweep away the snow and pick a bunch of Russian *Violeta* in early spring, and a handful of good *Chrysanthemums* just before the winter frost. Not only so, but when the squire's gardener was at a loss for flowers, this sensible fellow had plenty.

Gardeners ought not to be selfish, and nothing will persuade

me they are so ; for with a love of flowers, and the attention they require, so we find the moral love of the people is improved in any village where gardening is encouraged. Unfortunately, there are but a very few herbaceous nurserymen in the present day ; and, though I have got together a little lot of hardy herbaceous things, yet they have been gathered from a variety of sources, several from the small gardens of villagers.

I believe, in truth, we really require a retrograde movement in gardening. The temptation to supply bedding stock by nurserymen, in suburban localities, is too strong to be resisted: few have places in which to keep such things, and, therefore, the stock has to be renewed every summer.

For myself, I generally bed out a thousand or two plants

of my own, and, therefore, have no selfish motive in urging a change ; I only pity those who keep no regular gardener, and have no such conveniences. I pity, particularly, the steady mechanic who delights in his garden, which is often the means of keeping him from the beer-house, where he would waste his substance and ruin himself, both soul and body. Nor is this all—I liken flower gardening in the present day to the man who gives a great feast once in a year, and lives upon bread and cheese for the remainder.

However, I cannot do better than leave this subject in the hands of the Editors, who, I am convinced, will be considerate enough not to forget the wants of the cottage gardener.—
RUSTICUS.

MR. MARCH'S DESIGN FOR THE DECORATION OF THE DINNER TABLE.



At the great Exhibition of the Royal Horticultural Society which was held on the 5th of June last, Mr. C. Wentworth Dilke, with the view of improving the taste for dinner-table decoration, offered prizes for the best designs for the arrangement of flowers and fruits combined. The first prize, as we announced at the time, was awarded to Mr. March, of the Lord Chamberlain's Office, St. James' Palace, and it is with pleasure

that we are now enabled to furnish our readers with a representation of it.

We are informed that Messrs. Dobson & Pearce, of St. James' Street, have been entrusted by Mr. March to manufacture the set, which can also be used separately as ornaments for sitting-rooms in the country.

PAMPAS GRASS—BACHELOR'S BUTTON—DUKE OF ARGYLE'S TEA TREE.

A FRIEND has a large specimen of Pampas Grass, which for the last two years has grown to a great height, and been covered with spikes of blossom. Last winter it was nearly killed by the frost, and it was cut down to within a foot of the ground as far as it seemed dead. Since then the remainder has died

down, and at present resembles a large mass of closely compressed deal shavings, the same colour and tightly curled up. Meantime, round this mass (from 6 inches to 7 inches in diameter) has sprung up fresh Grass, now some 2 feet long, and one or two leaves have forced their way through the dead

mass. What should be done with reference to the latter to the plant?

What is the botanical name of the old plant popularly called Bachelor's Button?

What is the botanical name of a sort of weeping tree called the Tea tree found in old gardens? In one neighbourhood a very old farmhouse has the walls covered with it, and also it hangs freely over an old wall, with long stems pendent (like a Weeping Willow) the leaves very small, a dark blueish sort of green, the leaves thick and very small, and a little purple just coming out. I am no botanist, but it hangs something like a tree called the Salt tree, *Halimodendron argenteum*.—HERTS.

[Nothing can be done to the Pampas better than to let it alone and have its own way. When acres and miles of it get burnt from the sun or from being set on fire in the Pampases of Brazil, they do nothing to the old stools and most of them recover.

The botanical name of the Bachelor's Button is *Ranunculus acris flore pleno*, and the single kind is much like the "Buttercups," *R. repens*, and *R. bulbosus*.

Tea tree. Did you never hear of the Duke's Tea tree? The Duke of Argyle was so great a favourite with us Scotch gardeners for his kindness to Jeannie Deans, and for getting pardon for her sister from the Queen at Richmond, that we sent him down one of the first Tea plants, and with it the fastest climber in England. At the unpacking they changed the tallies, and the climber was put against a south wall, and the Tea plant in a place where it soon perished. It was a long while before the mistake was discovered, and when it was the plant was *Lycium afrum*, or Duke of Argyle's Tea tree.]

FRUIT-ROOM.

If you or one of your correspondents will favour me in your paper with a good plan of a fruit-house for storing and keeping Apples, Pears, &c., on the ground-floor, showing the mode of heating, ventilating, and lighting, or such as be necessary, you will greatly oblige.—A CONSTANT READER AND SUBSCRIBER.

[Without we had a plan of your room it would be little use giving a plan for your fruit-room. The first essential when perfectness is aimed at is, equality of temperature, as when fruit require a higher temperature to bring them to perfection, a few can be removed and heated as wanted. To secure this equality of temperature, it is always an advantage to have the walls hollow, as confined air is one of the worst conductors of heat. We have seen a room made thus double by a casing of wood or lath and plaster 3 inches or 4 inches from the brick wall. What light is given should, if possible, be on the north side, as the fruit will keep sound longer in the dark. Unless the window goes up close to the ceiling, and the top part is made to move, it would be best not to depend on the window for ventilation, but small sliding ventilators should be inserted close to the ceiling and others near the ground-floor level. The top ventilators will be all that will require to be opened, unless for a short time when the fruit is sweating much after being housed, when both may be opened. When this sweating is over even the top ventilators will only require to be open in fine days.

This would be the best plan with the ground-room of a common house, but when a fruit-room is to be built in a shed form, the roof should face the north, the walls should be hollow, the windows flush with the outside one, and shutters padded ready to go against them inside in severe weather, and blinds to pull down when necessary. The ceiling of the room should either be double, with a foot between them, or a layer of straw 1 foot thick should lie over the ceiling. Suppose the room was 15 feet by 10 feet, there should be two or three openings in the ceiling—say 9 inches by 6 inches, for ventilation, and these communicating with lanterns in the roof with hipped boards to throw off the rain. The roof itself if slated should be close-boarded beneath, and, independently of the double ceiling, or the layer of straw to keep the temperature equal, the slates should be painted or coloured white. But for vermin making holes, the best roof would be reeds or wheat straw. By such means and close shutting when cold weather comes, it would be rare indeed that the frost would penetrate, and even then slightly covering the fruit with clean straw, would generally be better than using a stove or heating-apparatus of any kind. If a small stove is used the funnel should go through the roof, and a little air be given. But in general the fruit will keep better without it. Those who

have not tried it, would be surprised to find what a sharp frost a double wall would keep out, if the roof is also double. A few winters ago some gentlemen got betting as to the cause why snow some 4 inches thick lay on the sloping roof of a Mushroom-house, ranging inside from 50° to 60°, whilst in the same range the snow had fallen off the slates, when the highest heat in the sheds beneath barely averaged 36°. The Mushroom-house had a boarded roof for the slates to rest on, the rafters beneath were lathed and plastered in the same slope as the slates, and the space between the boards and the laths was filled with clean, dry straw, and all the heat we could give inside would scarcely affect the slates outside; and just on the same principle, however hot the sun be outside on the slates, it will scarcely affect the temperature inside, were the walls equally isolated. Such a Mushroom-house with ventilation in the roof would form a first-rate fruit-room. In arranging such a room no plan is better than to have platforms from 2 feet to 3 feet wide all round, and tier above tier—say three, four, or more, according to the height of the room. These platforms are better when sparrowed—that is, made of pieces of wood 1½ inch thick, and 2 inches to 2½ inches wide, with half-inch spaces between instead of being solid all through.

We have written on the supposition that there is to be one fruit-storehouse, and that Apples and Pears that require more heat to bring them to perfection may be brought as wanted to the kitchen or the parlour, and receive the higher temperature necessary to bring out their flavour. Where these conditions can be secured, there will be little or no need for any heating-apparatus—in fact, under careless management it would do vast more harm than good. In a thin-walled room, placing the fruit in boxes, or even covering with sweet straw or bay in severe weather, but removing it at once when the weather changed, and never using it again, would be better than using much artificial heat—in fact, where such conditions in a fruit-room as the above cannot be obtained, we would much prefer a dry cellar, or any other chamber underground, where the temperature is kept almost uniform. In such underground places fruit has kept well with but little trouble.—R. F.]

POMOLOGICAL CLEANINGS.

My early Orleans Plums set in the orchard-house, and now ripening out of doors, as suggested in Mr. Rivers' book, are delicious; and the trees with their beautiful green foliage, and now studded over with purple balls, have a most pleasing effect. The culture of fruit trees in pots, under glass, must become very popular; it really is, to use your own expression, only in its infancy at present. Take, for instance, my Plum trees; why there is really more fruit on them than I have seen for years on as many standard Plum trees in Ireland. I am not, however, in favour of planting Peaches and Nectarines in the border, as it must be very difficult to keep them under proper control; but if a man wished to have a very magnificent tree (perhaps you might try it yourself) it would be worth while to build a handsome octagon-house, and then plant in the centre one tree, a showy free-bearing sort, and train it with mathematical precision in the pyramidal, and let it fill the house altogether.—J. M.

REEVES' ECLIPSE STRAWBERRY.—This is a new variety introduced to the notice of the Fruit Committee of the Horticultural Society last year. It was then considered a variety of great merit for forcing, as it possesses what few other varieties do when forced—a rich pine flavour. Prince Arthur also possesses the same flavour when forced; but Eclipse so far exceeds that variety in size, it being generally of the largest. We have this season seen it growing out of doors, and we have found it a very abundant bearer, and one which may be safely relied upon for a general crop.

GARDENS FOR OUR SOLDIERS.

THE *Constitutionnel* publishes the following letter from the Camp of Chalons, showing the solicitude of the Emperor for the improvement of the condition of the common soldier:—

"At the close of winter the Emperor gave orders that a vegetable garden should be arranged behind the quarters of each regiment of infantry and cavalry, by means of which the soldiers might be supplied with additional comforts. For this purpose fourteen gardeners for each regiment, under the direction of a sergeant and a corporal, were sent to the camp in the month of

April last. Engineers traced out these gardens behind each tent or wooden hut. Each regiment was placed in possession of its ground, and the men immediately began to cultivate it. Wherever the spade was not strong enough to penetrate the ground engineers came to their assistance. On the orders having been first given to the corps of Engineers they sowed a great quantity of Cabbage seed, and the produce was distributed to each regiment in the shape of several thousand feet of Cabbage plants. Radish, Onion, Lettuce, Carrot, and Turnip seeds were sent from Paris to be distributed to each regiment. All these vegetables now present a magnificent appearance, and will serve this year to add to the soldiers' dinners. From 12,000 feet to 13,000 feet of Cabbage, and from 8000 feet to 9000 feet of Leeks and Onions, are to be seen at this moment in the garden of each regiment. There are, likewise, a large quantity of Kidney Beans, which the soldiers may eat green. Next year, and the years following, the quantity and quality of the vegetables will be still better, inasmuch as the ground will have been better tilled and better manured. The soldiers of each regiment exhibit great *amour propre* in the cultivation of their gardens and in the superiority of their produce. The soldiers, moreover, derive great pleasure from walking through these gardens, which remind them of their paternal homes. In a word, the Emperor's idea is highly approved by the soldiers, and it is said to be the Emperor's intention to carry it out on a much larger scale."

[We wish our Government would follow the example thus set by the Emperor of the French, and attach gardens, not only to our camps, but to our barracks. The use of an increased amount of vegetable food, besides the employment for leisure hours afforded by such gardens, would promote both the physical and moral health of the soldiers.—EDS. J. OF H.]

FUCHSIA SPORT—HARDY ORCHIDS.

IN a Fuchsia that I have, I have just noticed a flower that has only three sepals, three petals, and only six stamens. Can you tell me whether this is a common occurrence with flowers to do this?

Can you also name to me any nurseryman that sells hardy Orchids? as Mr. Appleby in his book does not name any.—ARTHUR COLE.

[We are not aware that it is a common occurrence for a Fuchsia to assume the form you mention; but in this instance the rule is followed in regard to the structure of the flower—petals equal in number to the sepals, and the stamens double that number.

We cannot recommend nurserymen, but, as a rule, always consult those who advertise in our columns. You can always get anything you want from them.—EDS. J. OF H.]

EFFECTS OF HELLEBORE POWDER ON THE GOOSEBERRY CATERPILLAR.

You may inform your correspondent that hellebore powder is a certain cure for the Gooseberry caterpillar; but it must be used rightly and in time. It should be applied as soon as the caterpillar is first perceived, and if the first application is not effectual it should be repeated again and again. Many gardeners neglect these two simple rules, and then they say that "hellebore powder does no good."

I was in a neighbourhood the other day where the Gooseberry trees generally were almost eaten up by the caterpillar; one garden I visited where scarcely a leaf remained. I asked the gardener if he had tried hellebore. "Oh, yes," said he; "but I might as well have left it alone." But I found on inquiry that he had not used it rightly. I then went to another garden not far distant, where I found the Gooseberry trees without any sign of caterpillar. The gardener told me that the plague was beginning, but that as soon as ever he saw it he applied hellebore powder, and that he repeated the dose. Here, where rightly used and in time, hellebore powder was effectual; and I have no doubt at all that when so used it will never fail.—EXPERTUS.

ENTOMOLOGICAL SOCIETY'S MEETING.

THE July Meeting of the Entomological Society was very fully attended, it having been understood that this would have been

the last meeting in their apartments in Bedford Row. It appears, however, that the arrangements which had been nearly completed for the removal of the Society to fresh rooms in Gerard Street had failed; and that it was understood that some alterations would be made in the present apartments to render them more commodious, so as to obviate the necessity of removal. The chair was occupied by George R. Waterhouse, Esq., of the British Museum, Vice-President.

General Sir J. B. Hearsey (who, after more than fifty years' service of the most distinguished kind in India, has returned to England), exhibited a case of beautiful insects collected by himself in the neighbourhood of Darjeeling, including several species hitherto unique in our English collections. And Mr. Baly exhibited a fine series of Beetles belonging to the family Hispidae, collected by Mr. Browning in China and the Philippine Islands.

Mr. F. Smith exhibited a specimen of the very curious parasite, allied to Hippobosca, which infests the hive bee, named *Braulta cœca*. It had not been previously observed in this country, and the present specimen had been found upon an individual of the *Apis ligustica*, which latter had, however, been reared in this country. It had been taken by Mr. Woodbury near Exeter.

Specimens of *Ammæius brevis*, a new British Beetle of the family Aphodiidae, which had been taken in some profusion on the sands at Southport near Liverpool, were distributed among the members by the captor; who also exhibited specimens of the black variety of *Tillus elongatus*, which he thought might prove to be a distinct species having white patches at the sides of the elytra. It had been taken at Croydon.

Mr. MacLachlan exhibited specimens of both sexes of the remarkable aquatic Moth, *Acentropus niveus*, recently taken at Hampstead.

Mr. Desvignes read a paper containing descriptions of eleven new British species of Ichneumonidae belonging to the genus *Basus*.

Mr. Stevens exhibited a case of beautiful Lepidoptera collected by Mr. Trimen at the Cape of Good Hope, and announced the publication of a work on the Butterflies of South Africa by that gentleman. Mr. Stevens also exhibited specimens of a new British Weevil, *Nedynus crux*, taken by himself at Mickleham.

Mr. Stainton exhibited some Birch leaves from the neighbourhood of Scarborough infested by a remarkable mining larva, which, after consuming the parenchyma of the leaf, cuts out a circular case about one-tenth of an inch in diameter.

Captain Cox exhibited a number of drawings of the transformations of Lepidopterous insects, as well as the ravages of a Dipterous larva on the middle shoots of Wheat plants; which, however, instead of being destroyed thereby, threw out a number of side shoots, so that the crop was not materially injured by the attacks of the insect. Professor Westwood stated that this larva was doubtless the young state of *Chlorops temopus*, or *Musca pumilionis*, well known for the habits of its larvæ infesting Wheat; and General Hearsey stated that it is the custom for the native Indians on the Punjab to mow off the first shoots of their corn crops in order to increase the growth of the plants.

Mr. Stainton exhibited some galls found upon *Silene nutans* produced by an insect. And Mr. Robinson exhibited drawings of various exotic Coleoptera collected by Mr. Wollaston.

Captain Cox made some remarks on the great rarity of insects this season, owing either to the cold of the last winter or the extreme moisture of the last season. He also suggested the advisability of planting certain species of wild plants in gardens, in order to attract the different species of insects which frequent them.

Mr. MacLachlan read some remarks, in which he contended that the suggestion that many of the recently established species of Lepidoptera, especially among the small species, were only varieties resulting from a variation of food of the larva was untenable, and that there was very great difficulty in determining the question owing to the minuteness of the individuals. Professor Westwood having been appealed to as supporting the contrary opinion, stated that he had hoped that he had endeavoured to guard himself from misapprehension in previous observations upon this subject. He had indeed stated his opinion that many of these so-called new species were merely varieties, and he had in vain looked for any structural characters, either in the larva or perfect insect, set forth in their descriptions to warrant their establishment. A slight variation in the colour of

the larva, or a difference in the form of the burrow in the leaf in which they reside, or in that of the case which they make and carry about as their abode (on which many of these species mainly rested), were, he considered, all due to the difference of the plants on which the insects fed. He had, however, no positive proof of such a fact, and therefore had never asserted it as such. But analogy bore out this view; and Mr. MacLachlan had forgotten that the largest species of Butterflies and Moths—namely, the giant Ornithopteri and the great Silk Moths of the East, afforded instances of modification of species, which ought to have great weight in determining the question. He considered it certain that the Ailanthus Silk Moth, now cultivated in France, was only a variety of the *B. Cynthia*, which had become modified by its food; and General Hearsey stated that it was well known that the Tusser and Arrindy Silkworms of India produced very different kinds of silk when fed upon different plants. Mr. Bates had also proved that variation in species occurred in Butterflies in comparatively small geographical ranges, which Mr. Westwood considered might be due to other considerations, as it was well known that in Africa species remained permanent over an exceedingly wide range. Experiments were required to settle this question as regarded the British Microlepidoptera.—W.

THE NEIGHBOURHOOD OF RIO DE JANEIRO.

AFTER three days' travelling we arrived at Socôgo, the estate of Senhor Manuel Figuereda, a relation of one of our party. The house was simple, and, though like a barn in form, was well suited to the climate. In the sitting-room gilded chairs and sofas were oddly contrasted with the whitewashed walls, thatched roof, and windows without glass. The house, together with the granaries, the stables, and workshops for the blacks, who had been taught various trades, formed a rude kind of quadrangle; in the centre of which a large pile of coffee was drying. These buildings stand on a little hill, overlooking the cultivated ground, and surrounded on every side by a wall of dark green luxuriant forest. The chief produce of this part of the country is coffee. Each tree is supposed to yield annually, on an average, 2 lbs.; but some give as much as 8 lbs. Mandioca or cassada is likewise cultivated in great quantity. Every part of this plant is useful: the leaves and stalks are eaten by the horses, and the roots are ground into a pulp, which, when pressed dry and baked, form the farinha, the principal article of sustenance in the Brazils. It is a curious, though a well-known fact, that the juice of this most nutritious plant is highly poisonous. A few years ago a cow died at this Fazênda, in consequence of having drunk some of it. Senhor Figuereda told me that he had planted, the year before, one bag of Feijão or Beans, and three of Rice; the former of which produced eighty, and the latter three hundred and twenty fold. The pasturage supports a fine stock of cattle, and the woods are so full of game, that a deer had been killed on each of the three previous days. This profusion of food showed itself at dinner, where, if the tables did not groan, the guests surely did; for each person is expected to eat of every dish. One day, having, as I thought, nicely calculated so that nothing should go away untasted, to my utter dismay a roast turkey and pig appeared in all their substantial reality. During the meals, it was the employment of a man to drive out of the room sundry old hounds, and dozens of little black children, which crawled in together, at every opportunity. As long as the idea of slavery could be banished, there was something exceedingly fascinating in this simple and patriarchal style of living: it was such a perfect retirement and independence from the rest of the world. As soon as any stranger is seen arriving, a large bell is set tolling, and generally some small cannon are fired. The event is thus announced to the rocks and woods, but to nothing else. One morning I walked out an hour before daylight to admire the solemn stillness of the scene; at last, the silence was broken by the morning hymn, raised on high by the whole body of the blacks; and in this manner their daily work is generally begun. On such fazêndas as these, I have no doubt, the slaves pass happy and contented lives. On Saturday and Sunday they work for themselves, and in this fertile climate the labour of two days is sufficient to support a man and his family for the whole week.

The greater number of trees, although so lofty, are not more than 3 feet or 4 feet in circumference. There are, of course, a few of much greater dimension. Senhor Manuel was then

making a canoe 70 feet in length from a solid trunk, which had originally been 110 feet long, and of great thickness. The contrast of Palm trees, growing amidst the common branching kinds, never fails to give the scene an intertropical character. Here the woods were ornamented by the Cabbage Palm—one of the most beautiful of its family. With a stem so narrow that it might be clasped with the two hands, it waves its elegant head at the height of 40 feet or 50 feet above the ground. The woody creepers themselves, covered by other creepers, were of great thickness: some of which I measured were 2 feet in circumference. Many of the older trees presented a very curious appearance from the tresses of a Liana hanging from their boughs, and resembling bundles of hay. If the eye was turned from the world of foliage above to the ground beneath, it was attracted by the extreme elegance of the leaves of the Ferns and Mimosa. The latter, in some parts, covered the surface with a brushwood only a few inches high. In walking across these thick beds of Mimosa, a broad track was marked by the change of shade, produced by the drooping of their sensitive petioles. It is easy to specify the individual objects of admiration in these grand scenes; but it is not possible to give an adequate idea of the higher feelings of wonder, astonishment, and devotion, which fill and elevate the mind.

After the hotter days, it was delicious to sit quietly in the garden and watch the evening pass into night. Nature, in these climes, chooses her vocalists from more humble performers than in Europe. A small frog, of the genus *Hyla*, sits on a blade of grass, about an inch above the surface of the water, and sends forth a pleasing chirp; when several are together they sing in harmony on different notes. I had some difficulty in catching a specimen of this frog. The genus *Hyla* has its toes terminated by small suckers; and I found this animal could crawl up a pane of glass, when placed absolutely perpendicular. Various cicadae and crickets, at the same time, keep up a ceaseless shrill cry, but which, softened by the distance, is not unpleasant. Every evening after dark this great concert commenced; and often have I sat listening to it, until my attention has been drawn away by some curious passing insect.

At these times the fireflies are seen flitting about from hedge to hedge. On a dark night the light can be seen at about 200 paces distant. It is remarkable that in all the different kinds of glow-worms, shining elaters, and various marine animals (such as the crustacea, medusa, nereide, a coralline of the genus *Clytia*, and *Pyrosoma*), which I have observed, the light has been of a well-marked green colour. All the fireflies, which I caught here, belonged to the Lampyridæ (in which family the English glow-worm is included), and the greater number of specimens were of *Lampyrus occidentalis*.* I found that this insect emitted the most brilliant flashes when irritated: in the intervals the abdominal rings were obscured. The flash was almost co-instantaneous in the two rings, but it was just perceptible first in the anterior one. The shining matter was fluid and very adhesive; little spots, where the skin had been torn, continued bright with a slight scintillation, whilst the uninjured parts were obscured. When the insect was decapitated the rings remained uninterruptedly bright, but not so brilliant as before; local irritation with a needle always increased the vividness of the light. The rings in one instance retained their luminous property nearly twenty-four hours after the death of the insect. From these facts it would appear probable, that the animal has only the power of concealing or extinguishing the light for short intervals, and that at other times the display is involuntary. On the muddy and wet-gravel walks I found the larvæ of this lampyrus in great numbers: they resembled in general form the female of the English glowworm. These larvæ possessed but feeble luminous powers; very differently from their parents, on the slightest touch they feigned death, and ceased to shine; nor did irritation excite any fresh display. I kept several of them alive for some time; their tails are very singular organs, for they act by a well-fitted contrivance as suckers or organs of attachment, and likewise as reservoirs for saliva, or some such fluid. I repeatedly fed them on raw meat, and I invariably observed, that every now and then the extremity of the tail was applied to the mouth, and a drop of fluid exuded on the meat, which was then in the act of being consumed. The tail, notwithstanding so much practice, does not seem to be able to find its way to the mouth, at least the neck was always touched first, and apparently as a guide.—(*Darwin's Journal during the Voyage of the "Beagle."*)

* I am greatly indebted to Mr. Waterhouse for his kindness in naming for me this and many other insects, and in giving me much valuable assistance.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE occurrence of genial showery weather will have brought the recently trenched ground into good condition for planting out the latest crops of Cauliflowers, Broccoli, and winter Greens, which should be proceeded with without delay. *Asparagus*, keep the weeds down in the beds, for which purpose occasional sprinklings of salt are good, as they check the growth of weeds in their infancy, and are of benefit to the plants. See that they are properly supported, as the crowns are sometimes seriously injured by the stems being blown down. *Cabbage*, make a sowing of East Ham for early spring use, and the last sowing of Coleworts. *Capsicums*, the plants to be kept watered during dry weather; if a little litter be laid around them they will not require it so often. *Carrots*, thin the late-sown crops, and loosen the earth between them where they have been sown in drills. *Celery*, pay strict attention to the early crop, let it be gone over with the hand, and all the offsets taken off, and let it have a thorough drenching with dung water, after which, on the following day, give it a slight earthing up to prevent evaporation. *Cucumbers*, as the plants on the ridges spread, cover the soil with short grass: this will keep the earth moist and the fruit clean. *Dwarf Kidney Beans*, a last sowing should now be made in a sheltered situation. The drills to be watered if the soil is very dry. *Endive*, transplant a few more, and make another sowing. *Tomatoes*, the shoots to be thinned, and those left to be kept closely nailed to the wall; they should also be frequently watered and mulched.

FLOWER GARDEN.

Attend to the wants of the growing plants by giving them their proper supports and training at this season. The propagation of stock for another year will require immediate attention. The cuttings of *Pelargoniums* for bedding purposes will, in ordinary seasons, strike freely in beds of light garden soil in any out-of-doors situation exposed to the sun; but where there are frames they should be preferred to protect the cuttings from very heavy showers of rain. Herbaceous plants and hardy bulbs now in full beauty to be kept in order by tying up loose growths and keeping the ground free from weeds. *Ranunculus* roots to be taken up forthwith, and dried in the shade; if allowed to remain in the ground they generally strike fresh roots after the first heavy rains. Plant out rooted *Pink* pipings on well-prepared beds. Examine them occasionally to set them properly if they are uprooted by worms. *Dahlias* will require an abundance of water. Thin out the shoots if too thickly together. Advantage to be taken of showery weather to prick out the spring sowings of *Wallflowers*, *Sweet Williams*, *Canterbury Bells*, and other such biennials into nursery-beds. Continue to propagate *Antirrhinums*, *Pentstemons*, *Phloxes*, &c., by cuttings; they take root readily under the shade of a north wall covered with hand-lights.

FRUIT GARDEN.

Prepare the ground intended for new plantations of *Strawberries* by very deep trenching, and afterwards by a dressing of half-decomposed manure, and fork it in. Old worn-out beds had better be trenched up, and the crop changed. Keep the runners well removed from the permanent beds. Applications of liquid manure and soot will be beneficial at this season. Thin out the shoots of *Figs*, and keep them well nailed in. Out-door *Grapes* are late, and will require every attention in stopping and training the shoots as open as possible to give them the benefit of sun and air.

GREENHOUSE AND CONSERVATORY.

Camellias, whenever the young wood appears getting ripe, may be removed to the open air; they thrive best in a situation shaded from the midday sun, and sheltered from high winds; to be careful to place them on a cinder or slate bottom, to prevent worms from getting into the pots. *Chinese Azaleas*, if equally forward in their growth and have formed their next year's flower-buds, may likewise be turned out; but, unlike the *Camellias*, they require full exposure to the sun and air, and to be placed in an open situation that the wood may become thoroughly ripened. It may, however, be necessary to place them for a week or two in a partially-shaded situation to harden their foliage sufficiently to bear the full force of the sun, as the sudden change from a house to bright sunshine might cause the leaves to turn brown. *Cinerarias*, whether seedlings or suckers, should have regular attention; those intended for winter work should be potted forward without delay. On the evenings of hot, dry

days give the plants a good sprinkling, and also where the plants are standing. *Pimelea spectabilis* and other kinds which have done blooming to have their branches liberally shortened in, and to be set in a cool shady place to break, as also the different kinds of *Polygala*. *Aotus gracilis* to be cut down close to the pot, and *Leschenaultias* which are getting shabby to have all their flowers and flower-buds removed, and to be placed in a cool place to start again; care to be taken that they are clear of insects, and to sprinkle them overhead once or twice a-day in warm weather.

W. KEANE.

DOINGS OF THE LAST WEEK.

STILL enough of showers, and sun, and warmth, to give one the hay fever, and, tantalising it is just when a piece is turned over and a very little more sun would make it fit for carrying, to see it deluged before one's eyes, and men and maidens forced to scamp for the nearest place for shelter. But how the Turnips do grow! The dreaded fly has been almost a stranger in this quarter this season, and from what little we have seen of Wheat and other grains, there seems to be a fine promise of a glorious harvest if the weather will only be propitious, and a kind Providence will bless the husbandman's toil. Ah! the blessing might oftener come, did we not in our self-sufficiency and pride so often forget our dependance on that blessing. Mangolds, notwithstanding all the grumbings about bad and old seed will be better than was expected, and the ground will not be lost with those that kept their eyes about them, even when there was a partial failure, as there was plenty of time to fill up with dibbled Swedes, Cow Cabbages, or even Savoy, and the latter if perfected early, housed or pitted, dry, make no bad food in winter either for two-footed man, or four-footed ox or cow.

There is hardly anything more perplexing than this question of good seeds. In such seasons as the last, all that the most honourable, conscientious seedsmen could do, was to do their best; and if some things did not come so well as others, what is the use of railing at a class of honourable men instead of making allowance for the season, or finding fault with ourselves? Ever since Adam ate the Apple, and then tried to throw the blame on mother Eve, there has been growing and increasing amongst us a most unmanly, degrading practice, of trying to throw the responsibility of all failures on other shoulders than our own. Perhaps from following so closely the occupation of the first horticulturist, and thus from handling the soil becoming more than others, "of the earth, earthy," may be the reason why, as a class, and in advance of men of other arts, we have made such proficiency in the sciences of grumbling and recrimination. Only let us proceed a little farther, and the public will pay as little attention to our complaints as was given to the howl of the mendacious boy when the wolf actually did come. This failing shows itself in myriads of forms, but the seed question is its favourite field of action. What Atlas shoulders these seedsmen must have to carry the huge weight of failures heaped upon them, and thrive well under it all! Rogues, no doubt, there are in all trades, and people, if they expect goods for next to nothing, must expect to pay dear for their cheap articles; but a man who has a character to lose, is just as anxious to sell a good article as the customer is to buy one. I do not set myself up as a purist in these matters, no doubt I have my hoot of the dolefuls at times, but I do think it is more manly to find other apologies for failures—nay, honourably to lay them on our own backs at times, instead of indulging in this childish recrimination on others.

I have personally seen little this season—so little that I might have stood as a pattern housewife in the estimation of a cynical critic, who considers that the mistress of a house should resemble the snail, which goes no farther from home than she can carry her shell-house on her back; but even in the quietness of this retreat what tales and mishaps have reached me of such shocking seeds and such cheats of seedsmen!!! Well, I had a boot about one or two kinds of Peas, and repeated trials proved that the failure was not all my fault; but on the whole I have never found seeds better than this season. Onions, Carrots, Parsnips, Peas in general, French Beans in particular, Greens and Lettuces, coming up as thick if not thicker than usual. Of flower seeds I may say the same thing; and as I know that some folk who could not get a seed up had their seeds from the same firm, or from others equally determined to supply a first-rate article, I could do no other than come to the conclusion

that something was at fault besides the real character of the seeds—in fact, my impression is that in a great majority of such cases the seeds were either starved, buried, or eaten up by birds and other vermin.

I may mention a few facts illustrative of the latter idea. There are few seeds more hardy than Prince's Feather and Lories-bleeding. All they require is a fine pulverised soil and very shallow covering. For years we never had any trouble with them but pulling out ten times more than what were left to grow to a good size; and with all our new things hardly anything makes more striking lines or rows. But at length the birds took to them and no mistake. Branches and nets were put over them, but still by hook and by crook they would be at them; and once they got in they would clear out a row—more, seemingly, for mischief than for any love of eating: and the care required was so incessant just as the little things came through the soil and even afterwards, that we have been forced to sow such seeds under the protection of an old sash or a calico-frame, and plant out what we want. This season also we sowed in the very best style some lines round the outside of beds of *Nemophila*, *Saponaria*, *Sanvitalia procumbens*, &c., and we got scarcely a plant. Seeds from the same packet sown exactly in the same way, but under protection, so that neither slugs, nor snails, nor birds could get at them, came thick enough, and were used to make edgings where the sowing out of doors had failed. Some three weeks ago we sowed with our own hands some Lettuces, Endive, &c., on a fruit-tree border, having no other patch of ground at liberty. We have long learned that to sow such things, or any of the Brassica tribe, and leave them uncovered by net, &c., was just as wise a thing as waiting by the side of a river until the waters had all passed by. A net was ordered to be placed over the border. The man run it up both sides, elevated it in the centre against the trees, and left a large space open there, just as much as telling the birds they might enter freely. Hardly a Lettuce has come. Endive has come moderately, for don't the birds know the difference as well as we do? When the matter was pointed out the man said it could not be the fault of the net not being rightly placed, for the seeds never came up, and therefore the seeds must have been bad! We should certainly have been surprised to get plants after the birds had feasted on the seeds to their hearts' content. In many such cases seedmen are blamed every day, when the fault ought to be placed against our own want of careful watchful attention.

Watered Cauliflowers, Peas, Beans, &c., with manure water to make them large, crisp, and succulent, and to prolong the flowering and bearing of the former. If close-gathered and but few pods allowed to become large, many kinds are almost continuous bearers. In some of the larger Marrowfats, if a few pods get too hard for use, they should be pulled off and laid in an airy place to dry and mature for seed. By removing all such and manure waterings, amateurs and cottagers with little room may almost have continuous gathering from all the larger Marrowfats, as *Jeyes' Conqueror*, *British Queen*, *Knight's Tall Marrow*, &c.

Watered also Lettuces rather more than half grown with manure water, that they might not only heart well, but eat short and crisp. This they will hardly be if the ground about the roots is dry. To keep them longer and as moist as necessary with little trouble, we prefer growing them on the north side of raised banks, and the north side of fences at the end of June and during July and August. I was glad to find our prejudice as respects Lettuce thoroughly dispelled. I found it was always grumbled about if a Cabbage Lettuce was taken in for raw salad; but being a little scarce of full-grown Cos, we got some fine heads of *Marseilles* Cabbage used to eke out the quantity required, and there has been no end of praises of the Lettuces. I have tried the *Marseilles* myself, and find it very crisp and sweet, though almost as large as a Cabbage, and I really think preferable to Cabbage Lettuces much more run after, as *Victoria*, *Versailles*, &c.; they when mature being softer, and, perhaps, on that account better for stewing. After all a good constant supply of Lettuces, so delicious in warm weather, is only to be obtained by frequent sowings—say making a sowing from May to September, whenever the previous sowing gets above the ground for an inch or so. Part of that allowed to stand where sown, and part transplanted, gives a nice succession. A great breadth of Lettuces, unless in some wonderfully large establishment, is just a great breadth of waste. The great thing is just to have enough to meet the demand, and little more and plenty of succession coming on. A young fellow came to me very

wroth because he was grumbled at for not having a nice blanched, crisp Lettuce for salad, though previously he had whole quarters of Lettuce, four parts out of five of which were rendered useless because they could not be used fast enough. He thoroughly tried them with Lettuce, and then they complained when they wanted them again. This young friend will be wiser for the future, or I will use my bet—a farthing's worth of treacle.

As the result of some experience, I would add two or three golden rules to that of the late Walter Dickson, of Edinburgh, which I have been assured was, Sow thick, thin quick, and keep friends with the cook. This for the first; the second would be, Never let the cook or housekeeper know if you are scarce of any one thing. Philosophers might make a volume on the subject; for me it is quite sufficient, that whatever is scarce becomes from that moment endowed with a peculiar charm, and is sure to be asked for because it was scarce. I could fill a volume with anecdotes confirmatory of this fact. The second rule is, Strive to have plenty of everything; and the third and the most important is, Never let any part of the establishment be glutted and tired of any one thing. "Sent this or that until they were thoroughly tired of it," is not the mode to supply kitchen stuff, fruit, or anything else. If you have extra abundance of any one thing, it is better to give part to the garden labourers than to let any part of the establishment get tired of it. Even the servants' hall should have its changes of vegetables when they are plentiful in summer. The Cauliflower is king of flowers, according to Dr. Johnson, but it would cease to be attractive when presented day after day—the sight at last would become repulsive; but with two or three changes between, how nice and pleasant it would be.

No gardener, however high his position, ought to be above looking after the vegetables that go to all parts of the establishment. The person that supplies the house is very apt to take the same things day after day if not jogged up a bit. Not long ago a friend of ours, when his mind was labouring under a complication of domestic trials and afflictions, found that his good man Friday had taken nothing but Potatoes, though Cabbages, Cauliflowers, Peas, Beans, Dwarf Kidney Beans, and Scarlet Runners were going to waste for want of gathering. Study, then, to give variety, and never allow a good thing to become distasteful by giving a surfeit of it.

We must pass the fruit garden with saying that the same process of stopping and training was proceeded with, and that Melons swelling were elevated on bricks to keep them from the moisture of the bed; and later ones showing bloom were set, and later ones still trained and pegged out.

Much time and trouble have been taken up with the flower-beds. Many of our friends merely plant, and leave them to themselves. I find all under my care becomes unsatisfactory unless there is careful training, pegging, and branching, and the plants are not only secured against wind, but great attention is paid to the relative heights in groups and in single beds filled with various things. Beds that receive nothing of this attention may look tolerable from a distance, but whenever you come near them you can see at once that they are destitute of all artistic skill, and, therefore, so far unsatisfactory. The beds and groups, it is true, should appear to be growing naturally, and yet design and skill should be apparent, or we might be satisfied with groups on the roadside, the hedgerow, and the wood glade, instead of giving ourselves so much bother in the garden. Where such attention cannot be given we would advise curtailing the number of flower-beds, that more time may be given to those left. I would sooner see one bed well managed than a dozen showing signs of slovenliness; and I would wish it to be thoroughly recognised as another golden rule—that the amateur or the cottager that can show a single bed better than any one amongst the hundreds at Shrublands or Trentham, just shows so much the more better taste and better gardening. This seems a hard matter to believe by some who have very little places, and the genius of envy seems to possess them when they see a fine large place; but it is the true point of contrast notwithstanding, and if kept in view many would return from visiting gardens on good terms with themselves and everybody else, instead of letting it be seen that they could not be superior to envying those who had more wealth and more land than themselves.

A friend has thanked us for the hint of insisting on the workmen having boards for their feet in regulating flower-beds, but says his Box edging gets injured nevertheless, and if the edgings are formed of grass paths the men destroy the symmetry of the edge by their heels and toes if the grass is at all damp. To

remedy this we insist on having boards along the edging for the feet to stand on, so that when, after tying, &c., the hoe is used along the bed to level it, no mark of toes or heels can be seen. These minutiae serve to promote a general good effect, and where there is so much to do it becomes painful to see work conducted on the do and undo principle.—K. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

PETUNIA BLOSSOMS (D. F.).—The "oilskin" in which you packed the flowers was an old skin oiled, and apparently from the head of a drum—at all events, it was the worse thing we ever saw, and your flowers could not be made cut. The same post brought us fresh specimens from the Belfast Botanical Garden as an experiment proposed by ourselves to the worthy Curator on the efficiency of oilskin packing. Even in Belfast this skin is double the right thickness. The right sort of botanical packing oilskin is as thin and filmy as the finest silver paper, and had it not been oiled you could read manuscript through it. It must be had from first-class chemists' shops as we think. But the Belfast specimens are quite as fresh as when cut. The variegated Petunia from Jersey was under initials.

CALCEOLARIAS—VEGETABLE MARROWS (Maybelle).—You had better secure seeds of your Calceolarias, and sow next month. Meanwhile turn the plants out of the pots into light sandy soil on a north border near to a wall or fence, and it alive at all they will push up young plants from the bottom, and the smallest rooted bit of these if grown on will fill a large flower-pot next season. The old plants never do any good again—at least, rarely. We presume you are speaking of the large-flowered herbaceous kinds. Do you not mean that your Marrows come whitish-green? That is how they ought to be when young and cookable. If you mean that they actually do come white there must be something particular in the kind or in your treatment. Do you shade or cover the fruit?

WHAT IS "CADLUCK?"—The common Hemlock is called in Cheshire Kedlock, a provincialism. Perhaps this may be the plant meant by "A YOUNG BEGINNER."—K. In Kent and the southern counties the Charlock, or Sinapis arvensis, is called Cadluck.

BOOKS (Clara).—The best rudimentary book on botany you can have is "Hensley's Rudiments." The *Cottage Gardener's Dictionary* does contain the botanical and English names of plants, and all gardening information you can possibly want.

ROSE CUTTINGS (D. K. B.).—It is quite immaterial whether you place the cuttings in a northern or a western aspect. The great object is to avoid too great exposure to direct solar influence, and too great excitement. If you make use of a western aspect you must just shade the more.

EXCHANGE OF PLANTS (H. W. E.).—We hardly know how this can be managed. If we insert a list of plants wanted, and we also insert the replies, these will amount to advertisements. We would have no objection to insert them as such.

CULTIVATION OF THE TRUFFLE (Thorn).—We shall be much obliged. It is rather an interesting subject.

BROOM (Dropsy).—It is the green tops that are used. Boil 1 oz. of the green tops in a pint of water down to half a pint, and take two table-spoonfuls every hour till it acts on the bowels.

DISEASED VINE LEAVES (J. S. Solihull).—We have no clear recollection of your former inquiry, but the leaves sent show that we were so far right. Although shaking the conclusions of you and your friends we are so glad to say that on neither of the three leaves is there a single trace of red spider. We cannot wish you anything hardly better, in a gardening point of view, than that you may always remain as ignorant of the appearance of that destructive rapacious little insect. The lower side of the leaf of No. 1 is much warted—an appearance produced by various causes, but chiefly from a too confined atmosphere, and a greater degree of richness at the roots than the leaves are able to get rid of in dull weather. There is a small mark or two as if a thrips had been nibbling, but we are not sure if there had been one; but we found not a single trace of a spider or its webs. No. 2 is equally covered with these fungoid warts, but not so forward. The sulphur has been used judiciously, as the Vine leaves do not seem to have suffered thereby; and the reason why the fungoid warts have become more brown where most exposed to the fumes, is that sulphur and lime are great enemies of the whole fungus family, or nearly so. Such leaves whether thus acted on by sulphur or not will not perform their functions so well as Vine leaves clear of all such incrustations; and though in this respect we do not think the sulphur will do great good, it will assuredly help to keep the red spider and mildew at a distance, only you must take care the fume is scarcely ever above 160° when the sulphur is on it. No. 3 shows symptoms that it, too, would be attacked with these warts as it gets older, and the edges of the leaves show signs of scalding from want of air being given early enough, or from being very close to the glass when the house was not only too hot but too moist—such as it would soon be on one of these bright mornings if the air was delayed being given a little too long. The great remedy for warring is promoting a reciprocal action between roots and leaves, and giving the latter a healthy bracing atmosphere. If the roots are deep in wet, rich soil, the leaves cannot perspire enough in dull weather, nor yet in fine weather if the atmosphere is too close, warm, and moist. If not satisfied you might send a leaf or two again, as they were a little faded; but we assure you that they contained no trace of spider or other insect, though in one spot there was the appearance that a thrips had been trying for a mouthful.

CUTTINGS OF CURRANT TREES (H. E. F. S. Edengrove).—The three to plant cuttings of Currant trees is in the spring. We do not think sawdust would be at all injurious to a pig to lie on it.

VINE LEAVES BROWNED (A Subscriber, Palermo).—The leaves of your Vines are scorched by the rays of the sun being collected into a focus by the inequalities of the thickness of the glass, which form lenses and act in the way exhibited.

CALCEOLARIAS DYING OFF (H. C. W. R.).—The subject was discussed most fully in our pages last year; and there you will find the results of the experience of many reliable men—such as Mr. Fish, Mr. Robson, and other practical gardeners. The premature decay is influenced chiefly by the mode in which they have been wintered. There is no remedy now but to fill up the blanks from the reserve-bed as they occur.

PLANTS TO FLOWER IN WINTER (H. H. M.).—Your query is answered in our last Number at page 307. Mildew on Roses can be kept away by mulching over their roots and watering two or three times a-week with liquid manure. As soon as mildew appears, dust the leaves with flowers of sulphur, and syringe after three or four days. If the mildew still appears, repeat the process.

PRESERVING ROSE PETALS.—(J. M.) wishes for directions how to preserve the petals of the Rose, so as to retain their odour for a long time. The only mode of preserving them that we know of, is by exposure to a warm current of air in a dry room, but not in the sunshine. This is the mode in drying them for pot pourri. We shall be obliged by information on the subject.

WOODLICE (H. G.).—We know of no mode of poisoning them. All that we can recommend for destroying them is in No. 3, page 49, of our present Volume.

NAMES OF PLANTS (J. A.).—No. 1, *Phalaris arundinacea variegata*, the Ribbon Grass or Gardener's Garter; 2, *Lunaria biennis*, or Honesty; 3, *Spiraea japonica*; 4, a Campanula of some sort, a very defective specimen; 6, a bit of a *Gladiolus*, ditto. (*G. S. N.*)—The plant which has come up among your *Eschscholtzia* is *Clarkia pulchella alba*. (*S. H. L.*)—1, not known; 2, *Erica Bowiciana*; the unnumbered plant is *Solanum pseudo-capsicum*. (*S. Devon*).—1, *Malva moschata*; 3, *Agrimonia eupatorium*; 4, *Teucrium scordonia*; 5, *Hypericum dubium*; 6, *Epilobium parviflorum*.

FLOWER SHOWS FOR 1861.

AUGUST 9th. RELEASE ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Carruthers.

AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.

AUGUST 23th. DEWSBURY. Sec., Mr. Edward Fort.

SEPTEMBER 2nd. HECKMONDWICK. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmondwike.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STOKES NEWINGTON CHRYSANTHEMUM SOCIETY.

Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.)

Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY, &c., SHOWS.

AUGUST 1st. ROSSENDALE. Sec., Mr. William Platt, Waterfoot, near Manchester.

AUGUST 1st. GOOLE. Hon. Secs., Mr. R. Blackburn, and Mr. C. Browning.

AUGUST 3rd, 5th, and 6th. SHEFFIELD. Sec., Mr. Wm. Henry Dawson, Sheffield. Entries close July 25th.

AUGUST 3rd. AYRSHIRE APRIAN SOCIETY. Sec., Mr. John Laughland.

AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW.

Sec., Mr. W. Houghton. Entries close July 27th.

SEPTEMBER 3rd. POCKLINGTON (Yorkshire.) Sec., Mr. Thomas Grant.

Entries close August 26th.

SEPTEMBER 11th and 12th. MANCHESTER AND LIVERPOOL. Sec., Mr. T. B. Ryder, 2, Elliott Street, Clayton Square, Liverpool. Hon. Local Sec., Mr. S. H. Hyde. Entries close August 14th.

SEPTEMBER 24th. BRIDGNORTH. Sec., Mr. R. Taylor, Bridgnorth.

SEPTEMBER 26th. MIDDLETON. Sec., Mr. Thomas Mills.

NOVEMBER 22nd, 28th, and 29th. DARLINGTON. Sec., Mr. J. Hodgson.

Entries close November 11th.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.

DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW.

Sec., Mr. W. Houghton.

N.B.—Secretaries will oblige us by sending early copies of their lists.

CURIOSITIES OF FOOD.

THE season of 1860-61 will long stand alone for the scarcity and consequent dearthness of Game. Tastes may be acquired, but after a time they almost become necessities; and variety in food is understood even as a part of the necessary knowledge of the physician. It is a mistake to imagine that Pheasants, Partridges, and Grouse interest only a few. From Sydney Smith, who said, "If there were a pure pleasure in this world, it was roasted Pheasant with bread sauce," down to the tall, thin, shabby man who haunts poulterers' shops late at night just before they shut, and then with watering mouth and glistening eyes, asks if there is a stale Pheasant or any other Game cheap,

he cares not how stale so it is within his small means—from one to the other all like Game, and are interested in it. Delicate in flavour, easy of digestion, and nutritious withal, it is a boon to the invalid, or to those who lack appetite; while a dinner party in the winter is hardly furnished without it. It is a graceful present among equals, and often affords the means of acknowledging an obligation or a kindness where more expensive things would fail.

In most things it is a truism that plenty produces waste, and that waste brings first scarcity, then want. Although extreme scarcity has in this instance followed on abundance, such as had never before been seen, yet one had nothing to do with the other. A wet season did it all. We have often had to do with cheap Partridges; but it was reserved for the year 1859 to show us good, fresh, young birds selling at three for 1s. in the market at Cambridge, or to know on undoubted authority that thousands were sold in Leadenhall for less than 2s. 6d. the dozen when the weather was warm.

The reverse of the picture is not less extraordinary. 1860 showed us young Partridges selling at 4s. each. The failure of the season was so complete that it was not an uncommon thing in the markets to open a basket containing, according to invoice, fifty Partridges, and to find it made up of forty-eight old and two young. The scarcity was not confined to Partridges; Pheasants also failed, and on many manors the produce did not amount to a young for an old bird.

As a curiosity in Game, it may be safely asserted that twelve Partridges could have been bought in 1859 with the money that was necessary to buy one in 1860.

COLOUR OF GAME FOWL.

A *New Subscriber* will be thankful for a little information about Duckwing Game fowl. He has been breeding from birds that ought to be good, if price will insure it. There is no doubt felt about the cock, as he came from Bailey, of Mount Street. He has no white feathers except in the wings; some of the primaries, he thinks, are so blazed. Legs willow. The hen, about whose produce there is a doubt, has a dark nutmeg back, light chestnut breast, stain of darker chestnut on wing, grey hackle, and pale lemon yellow legs.

The pair have thrown chickens, in many instances, with legs as white as any Dorking's, also flecked here and there with white feathers—in short, with a strong tendency to run grey.

The cock is black-breasted, neck and saddle hackle pale unbrown golden, showing, most probably, the remote Black-breasted Red cross.

The eggs were set on the 2nd and 3rd of May, and the hen came into the writer's yard April 6th. Since that time there has been no mistake as to her mate. She was not laying when she came, and did not begin for something like ten days or a fortnight after.

Are these chickens so suspicious that they ought to be condemned? If thoroughly admissible in Duckwings, he would prefer the white legs to a darker shade.

[Your chickens are far too young to destroy on account of feather; according to date they can only be seven weeks old, and their plumage may change much.]

There is no fixed colour for the legs of a Game fowl, but they should *all be alike*; and it is always a mistake to breed from cock and hen of divers hues, unless for the sake of experiment. Admitting, which from your description we should do, that the hen is pure, we have little doubt she had consorted with some other cock before she came to you. Experiments have proved that impregnation will last six weeks—we believe longer—and, although it is a vexed question, we have no doubt that one tread fertilises the sitting of eggs. This would explain any deviation from colour, and also the presence of white feathers. There are many strains of white-legged Game; for instance, the Derby Black Reds were so.]

MARKING CHICKENS.

COULD you inform *An Old Subscriber* if it in any way interferes with the laying of pullets to cut their tails and wings? Several of mine had their tail-feathers cut this year, as a mark to know them from older hens, in consequence of changing their caretaker. They have not laid well, and I have been informed that

clipping would produce the result. Is there any preparation that could be mixed with paint to put a mark on feathers? Paint has been tried, but soon wears off. Is there any way of knowing hens of three or four years old, when wishing to clear a yard of those too old to be profitable, and where the caretaker has been changed?

[Cutting the tails of your pullets had nothing whatever to do with their laying badly. If the tails had been pulled out it might have affected them, as it always causes more or less sickness in fowls while they are growing. We have no hesitation in saying it did not, and could not, influence them in any way to cut them. We have found paint effectual in marking fowls and Ducks, it will remain for months. It should be laid on thickly in a narrow stripe over the wing. All the Ducks in Aylesbury that run together are marked in this way. There is a very simple and effectual way of marking any fowls that require a distinguishing mark. It is to sew a piece of cloth round the leg. It should be nearly an inch long, that it may be easily seen. We have fowls so marked that have been running two years. The cloth is still quite fast, and the colour is plainly perceptible. We mention the latter point because the colour of the cloth is another method of distinguishing broods—red, blue, white, and black may mark so many broods. Unless such means are adopted, some hens “wear so well,” and “carry their age” so easily, or they have taken “such care of themselves,” they mix with the young and really where they are not known they pass muster. Another method is adopted with Turkeys—they put stout wire rings round their legs. Thus, one is marked on right, one on left, one with two, another with three rings.]

CHARACTERS OF A PURE SEBRIGHT BANTAM.

COULD you inform me in the next Number of your Journal the means by which I (who am quite ignorant in that way) can tell a pure Bantam fowl (Sir John Sebright), having, unfortunately, lost the fowl I wished to replace, but want it of quite pure breed?—X. Y. Z.

[A Bantam may be pure without possessing all the characteristics of a first-rate bird. We will detail the principal points, and also tell you what you must avoid in making a selection of a Sebright Bantam. The comb must be firm on the head, straight, with numerous points, and the pike behind turning upwards. If either of these fail it is a grave fault. The bird must have neither hackle nor saddle; the feathers must be accurately and evenly laced, showing a dark edging to each. If they are spangled instead of laced, reject the bird; the legs must be blue, the wings drooping, and the tail of the cocks and hens alike. There must be no sickle or streamer-feathers.]

PRESCOT EXHIBITION OF POULTRY.

THIS Exhibition has now been established for some eight or nine years past, and has always maintained a high position among meetings devoted to the improvement of our domestic poultry. Although the number of pens entered on this occasion fall somewhat short of those of former years, the Prescott Exhibition just closed undoubtedly, as a whole, eclipsed all preceding ones as to the general excellency of the birds competing. Certainly if personal effort by Committee men to maintain superiority is calculated to insure the success of a poultry show, the gentlemen composing the Prescott board of management well deserve the highest encomium; for it is but rarely that everything connected with such arrangements has been so carefully and so efficiently carried out as in the case of the one now under consideration. At a very early hour everything connected with the show-tent was in the most complete order; so that long prior to the time appointed for public admission, both the comfort of the visitors and also the poultry was equally provided for.

The entry of *Spanish* was peculiarly limited, Mr. Teebay, of Preston, being the only exhibitor. This gentleman's pair of first-rate pens securing the awards of both the first and second prizes likewise. It is well here to mention, however, that by the rules of the Prescott Committee, in all cases where both prizes are awarded to a single individual without competition, the second prize is retained to the funds of the Society; and as the like instance occurred in another class, it is perhaps most satisfactory for exhibitors thus situated now to be apprised of the reason why such premium will not be handed over to them.

The Grey *Dorkings* were a capital class, but many of the adult birds were rapidly falling into moult. In *Cochins* Mr. Stretch, of Liverpool, obtained an easy precedence both in Buff and also the Partridge varieties; nevertheless, these classes throughout were very creditable ones. The entries for *Hamburgs* were very limited indeed, only six pens representing all the four varieties; these were mostly good. Mr. Dixon, of Bradford, was the only exhibitor of *Polish* fowls: it is scarcely necessary to say his specimens were excellent. The *Game* classes were, perhaps, the best of any throughout the show-tent. It is somewhat singular that the Black Reds far outnumbered the Brown Reds—a most unusual feature in such meetings during the present season. They were exhibited, too, in a far superior condition of plumage in comparison to the other varieties. One class only was open for “chickens of every other variety,” except *Game*. Here, Captain Hornby, of Prescott, took the lead with a pen of such Grey Dorking chickens as have been but very rarely shown so early in the season. The second prize Silver-spangled *Hamburgs*, are also richly deserving of especial mention; they were from Mr. Dixon's yard. In *Bantams*, one class only remained for every breed. The first prize fell to the lot of Mr. Turner, of Preston, for a pen of excellent Brown Red *Game* Bantams; the second to the Silver-laced Bantams of Mr. Harvey Dutton Bayley, of Biggleswade.

In *Ducks* both the Rouen and Aylesbury breeds shone conspicuously. The latter prizes were swept away by Mrs. Seamons, of Aylesbury; the former, by a pen of the best-grown Rouen ducklings we remember to have met with. The Grey Call Ducks, and the Buenos Ayrean, were likewise first-rate.

The collection of *Pigeons* were undoubtedly the best ever yet seen in Prescott; they were exhibited in the most praiseworthy feather, and contributed a very large proportion to the interest of the Exhibition. Every prize in this portion of the Show was well contested. The following is the list of awards:—

SPANISH.—First and Second, R. Teebay, Fulwood, near Preston.
DORKINGS.—First, W. Copple, Eccleston. Second, Capt. W. W. Hornby, Knowsley Cottage, Prescott. Highly Commended, Capt. W. W. Hornby. Commended, E. Sergeneson, Huyton.

COCHIN-CHINA (Cinnamon or Buff).—First, T. Stretch, Marsh Lane, Bootle. Second, Miss V. W. Musgrove, West Tower, Aughton. Highly Commended, J. Cook, Eccleston.

COCHIN-CHINA (Any other variety).—First, T. Stretch, Marsh Lane, Bootle. Second, Miss V. W. Musgrove, West Tower, Aughton.

HAMBURGERS (Golden and Silver-spangled).—First and Second, J. Dixon, North Park, Bradford. Highly Commended, W. C. Worrall, Rice House, Knotty Ash.

HAMBURGERS (Golden and Silver-pencilled).—First and Second, J. Dixon, North Park, Bradford. Highly Commended, W. C. Worrall, Rice House, Knotty Ash.

POLANDS (Any variety).—First and Second, J. Dixon, North Park, Bradford.

GAME (Black-breasted and other Reds).—First, B. W. Bretherton, jun., Rainhill. Second, Capt. W. W. Hornby, Knowsley Cottage, Prescott.

GAME (Any other variety).—First, A. B. Dyas, Madeley, Shropshire. Second, G. W. Langdale, Leonfield Park, Beverley.

GAME CHICKENS (Any variety).—First, Capt. W. W. Hornby, Knowsley Cottage, Prescott. Second, Mrs. J. Hulme, Knowsley. Highly Commended, A. B. Dyas, Madeley, Shropshire; Capt. W. W. Hornby; J. Cook, Eccleston.

CHICKENS (Any variety except *Game*).—First, Capt. W. W. Hornby, Knowsley Cottage, Prescott. Second, J. Dixon, North Park, Bradford. Highly Commended, R. Tate, Driffield, Yorkshire.

BANTAMS (Any variety).—First, M. Turner, Preston. Second, T. H. D. Bayley, Ickwell House, Biggleswade.

DUCKS (Aylesbury).—First and Second, Mrs. M. Seamons, Hartwell, Aylesbury.

DUCKS (Rouen).—First, Mrs. J. Holme, Knowsley. Second, H. Worrall, Spring Grove, West Derby. Highly Commended, Capt. W. W. Hornby, Knowsley Cottage, Prescott.

DUCKS (Any other variety).—First, J. Dixon, Bradford (Grey Call). Second, G. S. Sainsbury, Devizes, Wilts (Black East Indian Ducks). Highly Commended, G. S. Sainsbury (Black East Indian Ducks); F. W. Earle, Edenhurst, Prescott.

SINGLE GAME COCK.—First, J. B. Chune, Coalbrookdale. Second, Capt. W. W. Hornby, Knowsley Cottage, Prescott. Highly Commended, A. B. Dyas, Madeley, Shropshire; Capt. W. W. Hornby; J. Berry, Prescott.

GAME BANTAM COCK.—First, T. H. D. Bayley, Biggleswade. Second, Miss V. W. Musgrove, West Tower, Aughton. Highly Commended, M. Turner, Preston. Commended, M. Turner; R. Moon, jun., Wavertree, Liverpool; W. C. Huli, The Vicarage, Poulton-le-Fylde.

PIGEONS.

CARRIERS.—First, D. Thwaites, Rock Ferry, Cheshire. Second, H. Child, jun., Sherbourne Road, Birmingham. Commended, G. Robson, the Brewery, Hull.

BALDS.—First and Second, J. Sephton, Scotch Lane, Prescott. Highly Commended, B. W. Bretherton, jun., Rainhill. Commended, J. W. Edge, Aston New Town, Birmingham.

BEAROS.—First, J. W. Edge, Aston New Town, Birmingham. Second, J. Sephton, Prescott. Highly Commended, H. Yardley, 30, Market Hall, Birmingham.

RUNTS.—First, F. Key, Beverley, Yorkshire. Second, H. Child, jun., Sherbourne Road, Birmingham.

CWLS.—First, D. Thwaites, Rock Ferry, Cheshire. Second, H. Yardley, Birmingham. Commended, J. Bessley, Prescott.

FANTAILS.—First, H. Child, jun., Birmingham. Second, F. Key, Beverley, Yorkshire. Highly Commended, J. W. Edge, Birmingham.

POUTERS OR CROPPERS.—First, D. Thwaites, Rock Ferry, Cheshire. Second, H. Child, jun., Birmingham. Highly Commended, D. Thwaites.

DRAGONS.—First, J. W. Edge, Birmingham. Second, H. Child, jun., Birmingham. Highly Commended, D. Thwaites, Rock Ferry, Cheshire.

ROUGH LEGS.—First, B. W. Bretherton, jun., Rainhill. Second, J. Bessley, Prescott. Highly Commended, H. Yardley, Birmingham; J. Sephton, Prescott.

ANY OTHER NEW OR DISTINCT VARIETY.—First, E. Sergeneson, Huyton. Second, J. W. Edge, Birmingham. Highly Commended, E. Sergeneson, Huyton; H. Child, jun., Birmingham; F. Key, Beverley, Yorkshire.

Edward Hewitt, Esq., of Eden Cottage, Sparkbrook, near Birmingham, officiated as the Judge.

ERRONEOUS JUDGMENTS OF POULTRY.

I QUITE agree with your correspondent “BANKER,” that the Partridge *Cochins* are, “as a rule,” very badly judged—in fact, all *Cochins* are the same, and I think it is to be attributed to the mistake of having only one judge to decide upon the merits of a whole exhibition, which is generally the case. There are many breeders of fancy fowls, who would, if solicited by the secretaries, gladly render assistance to any society, and help to judge their shows; and I think if this plan were adopted better judgments would be arrived at, exhibitors would be more satisfied, and professional judges saved from a great deal of blame. Will other amateurs kindly give their opinions on this subject?—COUNTRYMAN.

SICKNESS AMONG POULTRY.

I FREQUENTLY used to have my poultry and Pigeons attacked as your correspondent complains (July 9th). I have for some time used a poultry restorative, prepared by Mr. Collier, chemist, Erdington, near Birmingham, and have had my fowls, &c., greatly improved in health—in fact, I have scarcely any disease since its introduction. Fowls are difficult to “doctor,” therefore remember that prevention is not only better but much easier than cure. I shall try to persuade Mr. Collier to advertise his restorative and roup application, which latter is most valuable to poultry keepers.—CHARLES FELTON, Erdington.

BARBS WITH TURNED CROWNS.

A Lady at Southsea has some good Barbs which she wishes to exhibit. They have turned crowns. All other points being equal, would this be a disqualification? Most works on Pigeons say they may have them.

[If the Barbs are otherwise good the turned crown will not disqualify them from prizetaking; but, if closely pressed in competition, the crest spoiling the appearance of the head may turn the scale against them. Much, however, will depend on the whim of the Judge.—B. P. B.]

THE RABBIT (LEPUS CUNICULUS):

ITS HISTORY, VARIETIES, AND MANAGEMENT.

(Continued from page 169.)

THE RABBIT-HOUSE.

THE form of which varies according to circumstances and convenience. It is easy to judge that to breed Rabbits in this way is more expensive than in the warren, because in that there is neither trouble, embarrassment, nor hand labour, and one leaves to the animals the care of propagation and feeding; instead of which, Rabbits kept in hutches in a house take time and labour. However, the profits that one gets indemnifies advantageously. These little establishments are within reach of the greater number. The home of the citizen or the habitation of the peasant is equally propitious; the rich as well as the poor will find amusement and augmentation of wealth, and private interest as well as public demands that they should be more common than they are. Whether you construct a regular abode for your Rabbits, or for economy make use of an old outhouse or shed, the first condition is that it be dry, airy, and exposed to the east or south; the second, that the house be constructed so that one can keep it very clean. As to the size, that will depend upon the convenience which the situation offers, and upon the number of Rabbits the

breeder intends keeping. It would be inconvenient that too many Rabbits should live in the same place no matter how vast, because under many circumstances a great number of animals vitiate the air, which would be dangerous for the establishment. Let us suppose the spot chosen for the Rabbit-house is in a poultry-yard or garden. Begin by digging out the foundation about 5 inches or 6 inches, press in the earth and ram or tread well down, so that it is smooth and even; then put planks about 8 inches or 10 inches high all round the interior of the foundation, first deciding which way you intend to have the fall to carry off the water and urine when washed down—either have a channel at the back, at one end, or in front, and you must regulate your planks according. These are your guide in laying down the cement floor even. Put a kind of cement of the consistence of mortar, and spread it all over the place you have dug until it rises as high as the planks.

(This cement should be made by mixing one part of lime, three parts of clean gravel, and three parts of fine sand and water, until the mixture is like fine mortar. It must be used as soon as made while it is still boiling with the lime.)

It must be lightly trodden down when all is finished, so that it be solid and firm everywhere, and the top well smoothed with a piece of board used edgewise. The next day it will be as hard as stone; and to give it a more even and smooth appearance, you can give it a thin coat of Roman cement and fine sand, about $1\frac{1}{2}$ inch in thickness, and through this it will be impossible for their urine to filter, which is essential for the health of these little animals. You can now build walls on this cement either of bricks or stone, or, if for economy, you use boarding nailed to upright posts, and in the spaces left it would be better to fill these spaces with pieces of brick or tiles; and to do this it would be a good plan to nail up temporary boards to the post on the inside, and fill up the space between the outside and inside boards with small pieces of brick, tile, or rough stones, and pour down the cement made with lime as before directed, with the exception of being made thinner to allow it to flow more freely. In about a day or two the inside temporary boards may be taken down, and then give it a thin coat of Roman cement, which will produce a smooth surface like a wall, and may be lime-washed. You may carry this cement wall as high as you please, but it is not necessary to carry it higher than 2 feet or 3 feet. The reason I advise this is, that it is cheaper than brickwork, and it is necessary to prevent the ingress of rats, weasles, and other noxious animals, which, once located, would be difficult to get rid of, and destroy all your hopes and labours by destroying the litters.

In constructing the roof this will greatly depend upon circumstances—either a span roof, or if the house has a wall at the back, then the roof may be a lean-to, and may be covered with slates, tiles, or, what I have found the best, is a roof boarded and then covered with asphalt, which must be well tarred and sanded. It is economical, warm in winter, and cool in summer, which we cannot say for the slates or tiles. The front or sides, if it has two, and the upper panels of the doors, can either be glazed windows or open spaces covered with wire netting to prevent the entrance of cats, &c., and wooden shutters placed so as to close in cold weather. If glazed windows, they must be constructed to open, as nothing is more essential than a free current of air, and, therefore, it is necessary to cover the outside of the windows with wire netting, to avoid cats, as before mentioned, getting through when the windows are open. As to the height of the house, you must be guided by your own judgment and convenience, but be particular in constructing openings at the top for ventilation, with flaps to close at pleasure.

If you would keep Rabbits in a place already built, the first thing to do is to fill all the holes and crevices with pieces of brick or tile, and with Roman cement stopping the whole firmly, and then mixing one part of cement with two parts of fine sand and water till it has gained the consistency of cream; spread it on the paved or boarded floor to about $1\frac{1}{2}$ inch thick. This operation should be done quickly and dexterously, for the cement dries quickly and becomes a solid stone—through this vermin cannot penetrate. The sides of the building that have been stopped and cleaned should be plastered or covered with the same composition; but it must be thicker than for the floor. In a case where it might be found cheaper to use square tiles, stones, or bricks for paving, it is necessary to see that all the joints of the tiles or bricks be well filled with cement to avoid the filtration of urine under the pavement, for it is a condition of health necessary for the prosperity of the Rabbits, for other-

wise the earth would be impregnated with urinous matters. A fetid and mortal odour produced by the evaporation of septic gases would always be spread in the house. Whatever might be the cleanliness maintained above, it would ever be the hotbed of perpetual diseases, and would soon discourage the breeder by the losses it would make him suffer. I have dwelt rather lengthily on the subject of cement paving, but my experience dictates the necessity for these precautions; and when breeders begin and have no notion of the breeding of Rabbits, they soon find out by dint of losing the necessity for these precautions.

In addition to the Rabbit-house one should have a compartment separated from the other Rabbits, which we will call the hospital, for when Rabbits are sick the air they expire is breathed by others, and produces infection which might have been avoided if the sick Rabbit had been removed. It may happen that some may have a contagious disease, then all the establishment will feel the effects of it, and in a few days may be empty; and you would attribute to an epidemic, a disease that might have been avoided if the Rabbits had been separated.—R. S. S.

(To be continued.)

POT HERBS FOR RABBITS.

Will you inform me if pot herbs are good for Rabbits; and if so, what are the best sort to cultivate, the manner in which they are to be planted, where I can obtain them, and the time of year to have them sown?—H. R. L.

[One of the best herbs you can grow for Rabbits is endive. Sow it three times a-year to keep up a constant succession in April, June, and August.]

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 288.)

2.—THE YELLOWHAMMER (*Emberiza citrinella*).

French, Bruant.

German, Der Goldammer.

THE Yellowhammer is the commonest of our English Buntings, and is well known throughout the country by the appellations of Yellow Bunting, Yellowambird, Yellow Xite, and many other provincial names referring to the yellow colour of its head.

The beak, of which the upper half is darker than the lower, inclines to blueish while the bird is in song; in shape it resembles the Bunting tribe, the upper mandible being sligher, and having the peculiar knob in the palate or roof of the mouth. The plumage of the male is certainly attractive. The head and throat are of a clear, bright, pale yellow; but when newly moulted the feathers are mostly edged with a brownish colour, so that at first the beautiful yellow is only visible on the crown of the head, a stripe across the eyes, and part of the throat; but as spring advances these brown edges wear off, and the head appears nearly yellow, and the cocks are said to have more yellow according to their age, young cocks of the first year not having much more than old hens. The general plumage of the body is an olive brown above, with a yellowish-grey beneath; having longitudinal black marks on the back, and some chestnut brown shades on the rump and sides of the chest. Wing and tail-feathers dark, the outer tail-feathers having long white spots on the inner webs. The females are duller of colour, and show scarcely any yellow, being altogether more of a greyish shade.

They breed early in spring and again in June. The nest is rather deep, built of dry grass and lined with fine roots and hair. It is generally placed on a bank, or in a low bush or tuft of grass, very near to or on the ground. The eggs, four or five in number, are of a dirty pink colour, speckled with brown, and streaked with black.

The young may be reared by hand on sopped bread, egg, and crushed hempseed, or bread and milk, with mawseed. When full grown they will eat canary seed, oats, and hempseed, but they are rather delicate, because their natural food being insects, they do not thrive well on seeds alone, and require a change, as hard-boiled eggs, meat curds, ants' eggs, mealworms, &c., especially at moulting time. Much hempseed is very injurious. In a wild state they feed almost entirely on insects, as small beetles, flies, moths and their larva, grubs, and caterpillars, and are, consequently, very great friends to the farmers. In cold or frosty weather, when they cannot obtain their natural food, they

search the farmyards and roads for hay seeds and scattered grain, of which oats are their favourites; and they well deserve a few ears in the time of their necessity, in return for the great destruction of insects during the spring and summer, to which useful occupation they again betake themselves as soon as the snow is off the ground, and their natural food is to be procured.

This bird has not been much kept in confinement in this country, but in France they are much more prized, and are frequently kept for their song like the Chaffinches in small cages, and like them too, are sometimes blinded.

Perched on a bramble or the top of a hedge or bush, the cock bird gives forth his sprightly lay, which has been likened to the words, *Dish, dish, dish, o' green peas*, the first three notes being uttered quick, dropping the voice at *green*, and the last note is prolonged and gradually dies away in spring; before they come in full song the last note is often omitted.

"In some parts of Scotland it is interpreted as signifying, '*Diel deil deil take ye*,'—that is, the cruel nesters, and for this reason, probably, the Yellow Bunting is named the Devil's Bird."

Bechstein says, "The children in Thuringia imitate their song in the following words, *Wenn ich eine Sichel hatt? wollt ich mit schnitt.*"

If reared from the nest they may be taught the notes of some other birds.

I have tried to cross them with the Canary but without success, as there does not appear any understanding or fellowship between them, yet my father informed me he had seen some mules between a Yellowhammer and Canary; and M. Hervieux (1718) also mentions them as one of the birds that will breed with the Canary, and remarks, "The mongrels from a Yellowhammer are a little blueish, and the cocks of them sing very ill, especially when the sire is a Yellowhammer, and the dam a Canary bird." Such mules, however, would, I think, be very curious; but must be difficult to breed on account of the great difference between the habits and manner of the parents—the Canary being a Finch, and feeding on seeds and green feed, while the Yellowhammer is a Bunting, and, though eating seeds, prefers insects, and does not feed on green meat.

Bechstein mentions white and whole-coloured pale yellow varieties; and I have seen a wild bird with the quill-feathers of wings and tail nearly white.

In the cage they should be allowed to bathe occasionally. In winter when they come into the farmyards and villages, I have caught them in small wooden traps sunk in the earth, and set like the brick and tile traps; or they may be taken in the clap-nets. Their call is *chink chink*, accompanied with a jerk of the spread tail; they also cry *gip* or *zip*. They are considered excellent eating, and if treated the same are said to be equal to the far-famed Ortolan.—B. P. BRENT.

(To be continued.)

THE BLACKCAP.

YOUR old subscriber "L," inquires about this bird. It breeds generally in gardens, but he would derive no benefit by taking young ones from the nest, as they never have the pure song, and he would only reap disappointment for his trouble. The best way would be to purchase one reared off from a bird dealer, and he would tell him what kind of food he had given him. The price would be from 7s. to 10s. They require similar food and treatment as the Nightingale.—WM. BRENT, *Battle, Sussex.*

THIS bird usually breeds in gardens, shrubberies, and coppice. I should think they may be caught in a nightingale-trap, baited with a mealworm, or be taken from the nest and reared by hand. In either case they require rearing off and feeding like Nightingales.—B. P. B.

BEE SWARMING.

IN a year when bees are scarce the following facts seem to me (although I have but little pretensions to being an apiarian) worth recording. My uncle, living near Canterbury, had three hives alive after the winter, from these he has had ten swarms. But more remarkable still, the brother of a labouring man who

works for me sometimes had one hive, and from this he has obtained five strong swarms—the first on May the 3rd, the last on July 7th. One out of the five I should, however, say was a cast from the first swarm. Is not this something unusual?—D., *Deal.*

SWARMING SEASON OF 1861.

"Amisus ut fama apibus morboque fameque."—VIRGIL.

MANY of the bee-keepers in this kingdom having shared the fate of the "pastor aristas," so pathetically described by Virgil in his 4th Georgic, and lost their bees from disease and famine in the year 1860, it may be satisfactory to them to know that there is a probability of their losses being repaired this year, without having recourse to that expensive process of slaying and exposing the carcasses of bulls and heifers as recommended to, and adopted by, the aforesaid shepherd, as the following statement of facts may serve to show.

Having lost all my bees (including a stock and swarm of Ligurians) in the winter of 1860 and spring following, I purchased a prime swarm, which came forth on the 16th of May, for one guinea, and a second from the same stock for half-a-guinea. These were placed in my vicarage garden, and, after speedily filling the hive, the former has sent forth two large swarms, on the 18th and 23rd of June, both of which are thriving well, and the former has already given me a small box of honey on the top of its new stock-box.

This instance of one stock having become five I thought remarkable, but I find, on inquiry that more of my neighbours' bees have been even more prolific than mine; two cases having come to my knowledge in which one stock had become six, three swarms having issued from the parent hive, and two from the prime swarm; and one of these instances of rapid increase is the more remarkable, from the fact of the parent stock having been kept fifteen years by its owner without being known to send out a single swarm!

I shall be glad to learn from some of your correspondents, if the swarming season of 1861 has been as remarkable in other parts of the kingdom as in East Kent.—SIBERT-ON-THE-WOLD.

UNITING SWARMS—FEEDING BEES— WOODBURY-HIVE.

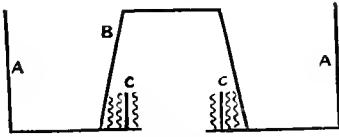
LAST year, in common with all bee-keepers, I found my stocks very poor. I obtained no honey and had no swarms, and was under the necessity of giving about 28 lbs. of syrup to make up three stocks for the winter. In the spring I found two stocks in square boxes, very weak, and the third in an old flat-top straw-hive, so forward that it swarmed on the 20th of May. I felt I had not given sufficient attention to Mr. Payne's warning, that weak stocks are very troublesome and very expensive, and, therefore, set two objects before me—namely, to renovate my stocks and yet get some honey.

I will call the two boxes A and B, and the straw hive C. On C's swarming I determined to unite it with the weakest box, A, which was successfully accomplished at dusk by turning up A (after whiffing in a puff of smoke), sprinkling it well with some liquified honey; then, with a smart rap, dislodging the swarm, and instantly, but gently, placing A over it. Very little fighting took place—perhaps two hundred bees were lost; and I was well pleased with the success of my operation. My hopes of honey harvest from this strengthened hive have, however, been partially blighted, for it sent out a prime swarm on the 2nd of July; my harvest from it, however, is about 10 lbs. pure honey.

On the thirteenth day C gave a second swarm—a very fine one—which was hived in a Payne's cottage-hive (D). This was put on the old stump, and the stock removed a short distance. On the 17th of June, fifteen days after the issue of the cast D, and when it had quite half filled the hive, C sent out a prime swarm. Remembering the success of my previous union, I determined to try again: of course D was too young, and the combs too imperfect and tender to allow of inverting and sprinkling, and, therefore, the swarm was united to it at sunset in the same way as before, but without these precautions. The result was successful so far as it made D a strong stock, and gives me hopes of a capital honey harvest from it; but the sacrifice of bee life was grievous. Throughout the next day fighting was kept up, and

from what bees I swept up from before the hive, I must have lost three pints by measure of dead bees. I have since taken a small glass of honey from the old hive C; and should the last swarm of the 2nd of July fill their box, I intend a union with C, which is eight years old in the autumn, by simply placing it at night over the new box with a whiff of smoke into each hive, and leaving it long enough for the brood to be hatched out, and then treating it as a super—a mode of uniting I have several times practised in autumn with entire success.

Fig. 1.



A Section of tin feeder.
B Section of inverted tumbler.
C Tube placed over opening in hive.

A succession of dull days followed the second swarm, D, which necessitated feeding. My feeder I will describe:—I never could manage floats to my satisfaction, and never mean to try them again: I have tried several kinds. Bottle-feeding was not then invented, and I think my plan, to those who have the ordinary circular tin feeders, equal in many respects to the bottle. My feeders are made of round cake-tins, with a circular two-inch hole, and a tube soldered 1 inch high; over this I invert a tumbler, and fill the space with two or three rounds of perforated zinc, and cover the whole with a dinner plate. My feeders hold $1\frac{1}{2}$ lb. of syrup.

The wavy lines within the tube, and between the tube and tumbler, represent coils of perforated zinc for the bees to cling to. I have never met with any description of such a contrivance; but it is a plan which I think to be preferred far before a wooden float.

I, yesterday, knocked out a second swarm from a hive they had occupied thirty hours. I found in beginning the foundation of combs, they had followed the direction of the straw bands; one large piece of comb and a small bit were parallel, a second large piece stood at an angle of 75° with relation to the former, and a third foundation was laid at right angles.

I now beg to put a query or two. In uniting a swarm with one previously housed, is it usual for much fighting to take place? Was not the case I have given extraordinary in the continuance of fighting through the whole of the next day? Would there have been less fighting had the union been delayed till after dark? It was made just about sunset.

In uniting stocks by simply superposing them in the autumn, do you think I incur any risk of much loss? I have united some half dozen pairs in that way without any.

I am glad to hear of the success of Mr. Woodbury's new bars, as related in your Number of the 2nd instant. Will you please to inform me if they were adjusted at $1\frac{1}{2}$ inch. And what dimensions does Mr. Woodbury recommend for bar-boxes for black bees, and how many bars? and what for Ligurian?

My district is a fair one. I should consider a harvest of 22 lbs. of honey per hive, with need to feed the stock with 5 lbs. or 6 lbs. after the honey season, a full harvest, from my experience of about ten years with from two to five stocks.—A. B. C., *Tunbridge Wells*.

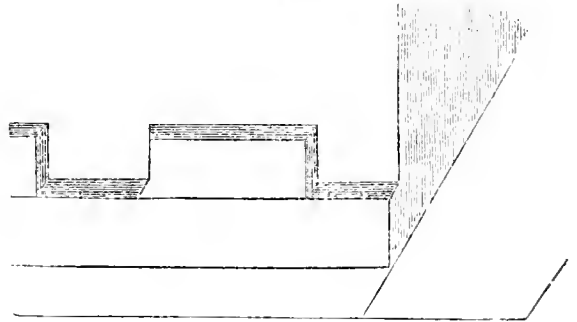
[Your experiments in uniting bees coincide very nearly with our own—perfect success generally, but some fighting at times; still we have never known the conflict continue during the next day. Had the union been deferred till after dark, the same result would, most probably have followed. We have had little experience in uniting stocks by what you term "superposing," and cannot therefore offer an opinion. We believe the grand secret of success in all bee-unions is to take care that the intruders are well gorged with honey, in which state they are welcome guests in any hive, and will generally be received as such.]

Mr. Woodbury's bar-hives for Ligurians are 13 inches square by 9 inches deep—nine bars; frame-hives $14\frac{1}{2}$ inches square by 9 inches deep, allowing in each case a fraction more than $1\frac{1}{2}$ inch from centre to centre. His bars are seven-eighths of an inch wide, and three-eighths of an inch thick. He has no colonies of black bees, but always used smaller hives when he kept them,

say 13 inches square by 7 inches or $7\frac{1}{2}$ inches deep, and recommends the same distance between the bars as above stated.

The following sketch, being an exact representation of an interior angle of one of Mr. Woodbury's hives with the bars removed, shows the rabbet which allows the bees to pass above the bars as well as the precise distance between each.]

Fig. 2.



RHUBARB WINE.

"WORCESTER," in your Number for July 2nd, has failed to pound it out of his neighbours to leave off pounding the stalks of Rhubarb, or to leave off putting brandy into their wine. Neither their pounding, nor his own more gentle pressing and squeezing, are in any degree necessary or advantageous.

In either case some of the pulpy matter may be separated from the stalks and remain suspended in the liquor, rendering the process of refining more tedious and less perfect. The notion of not obtaining the strength of the Rhubarb without pounding or pressing it, is founded on the misconception that the Rhubarb affords strength to the wine. The only use of the Rhubarb is to impart flavour and supply ferment. All the strength comes from the sugar, and the addition of brandy or any other spirit must tend to prevent the decomposition which subsequently takes place in the bottle, and to which the wine owes its sparkling briskness; and this addition of spirit might easily be carried to the extent of rendering the wine permanently flat, like port or claret.

Merely slicing, and steeping the stalks for four or five days, is all that is necessary to obtain all that is of use in the Rhubarb. A longer period of steeping has been found to induce mouldiness, and more or less affect the flavour. Simply straining, without pressure, should be resorted to.—W. W.

OUR LETTER BOX.

CANARY NOT REARING HER YOUNG (L.).—I know of no effectual way of inducing a hen Canary to feed her young if the natural instinct fails. Give her plenty of tempting food, as hard-boiled egg, hempseed, mawseed, stale bun, chickweed, and groundsel, and drive her off to feed occasionally. Removing the cock will not be of any advantage unless he is spiteful or quarrelsome when his removal may be advisable. If a hen does not sit, the eggs, if valuable, may be set under another Canary, or they may be placed in the nest of a Linnet, Greenfinch, or Goldfinch, care being taken to put them under at the time the wild birds are ready to sit. The young when so hatched may be taken from the nest like the young of those birds when half-fledged and reared by hand on a paste of sopped bread, egg, and mawseed. I know of no artificial way of hatching these eggs, nor of any successful way of rearing them by hand from the first day of hatching.—B. P. B.

DEATH OF THE QUEEN BEE IN A DUEL.—The death of the queen by the sting of an adversary has not proved the catastrophe I apprehended, and which the post mortem examination at the British Museum tended to confirm. The sequel of the history is this; though the hive was assiduously watched no other delinquent queen was found to be brought out, neither was there any unnatural excitement, and on the twenty-eighth day from the death of the injured queen I found young bees leaving the hive. In further confirmation that all was well, the persecution of the drones commenced two days later. I conclude that though the swarm was received amicably the parent hive twenty-one hours after it had departed, that two families had recognised a separate dynasty, and become partisans of their respective sovereigns, and so became justified in demolishing an adversary. "U. & O." It is the same result will be found in the hive of your correspondent "U. & O." It is by no means an easy matter to witness a royal duel, even in the best of observatory-hives, the unicell; but I have witnessed the fray between two young queens taken from a second swarm and placed under a glass, and the hand of a lady was on one occasion the battle field. Having cut two royal cells from a comb, both queens immediately emerged, and their first impulse was to seize each other, and the next instant one received the fatal wound.—INVESTIGATOR.

WEEKLY CALENDAR.

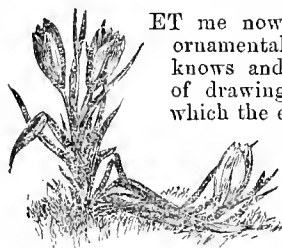
WEATHER NEAR LONDON IN 1860.													
Day of M'nth	Day of Week.	JULY 30—AUGUST 5, 1861.	WEATHER NEAR LONDON IN 1860.					Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.							
				deg. deg.			m. h.	m. h.	m. h.		m. s.		
30	Tu	Spartiums.	30.122—30.044	74—46	N.	—	22 af 4	50 af 7	33 10	22	6 7	211	
31	W	Eschscholtzia.	30.015—29.964	68—51	S.W.	—	24 4	48 7	7 11	23	6 4	212	
1	Th	Asclepias.	30.015—29.939	71—51	W.	·02	iv	vii	49 a 11	24	6 1	213	
2	F	Baptisia australis.	29.892—29.840	70—48	S.W.	·01	27 4	45 7	morn.	25	5 57	214	
3	S	Blue day Lily.	29.721—29.557	70—48	S.W.	·04	28 4	44 7	45 0	26	5 53	215	
4	SUN	10 SUNDAY AFTER TRINITY.	29.565—29.512	72—38	W.	—	30 4	42 7	52 1	27	5 48	216	
5	M	Perennial Sunflower.	29.662—29.532	69—50	W.	·19	31 4	40 7	5 3	28	5 42	217	

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 75.4° and 51.5° respectively. The greatest heat, 92°, occurred on the 2nd in 1856; and the lowest cold, 33°, on the 30th in 1858. During the period 130 days were fine, and on 108 rain fell.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 314.)

DRAWING-ROOM-TABLE DISH AND DESIGN.



ET me now give a design for a very ornamental table ornament. Every one knows and likes, I think, those dishes of drawing-room flowers—masses on which the eye looks down as they stand on some side table, or fill a jardinière. A large glass or China dish is necessary for this purpose, about two inches deep, and without a rim—that is, in form like a gigantic saucer. This dish

should have a second edge, divided off parallel to the other—I fear they are not to be bought ready made in this shape, but I think that is a difficulty that might soon be overcome, as glass Hyacinth dishes have been made, which is a step in the desired direction. The chief difficulty in filling these dishes is, to cover the edge perfectly, and without making the flowers look heavy, to prevent any gaps occurring when the leaves become disposed to curl up and dry.

For many years we used a common soup-plate set on an embroidered stand, with a thick edge of moss-like wool, knitted, boiled, baked, let cool, and untwisted, and this looks less objectionable than might have been supposed.

The next improvement was to have a tin circular dish with the second edge that I just now mentioned, the space between the inner and outer circles being filled with very fine soil. Now, there would be no doubt that cocoa-nut refuse would be the right material with which to fill it; but, the latter being very light, and floating considerably on water, should be covered, or slightly mixed with a little sand. One of the creeping *Lycopodiums* should then be planted all round the edge, so as to grow quickly and thickly all over round it; or, it is a very good plan to have several of these rings made separately from the dishes, and kept always growing, so that one or another might be used at pleasure. *Lycopodium stoloniferum*, and *L. denticulatum* are two of the best to use; and their green hue is very dark and pleasant, though I fancy in the country many of our own woodside mosses might be introduced with striking results—they are so very beautiful. If nothing of this sort is practicable, or rather if there is time to take the necessary trouble, the most charming of all effects is produced by a little German wreath of very small neat foliage, made up on a well-soaked roll of wool; or, which is far safer for the worker's fingers, thoroughly soaked bodily after it is made up, and then thoroughly drained on a coarse soft cloth. With these precautions it will, probably, be quite harmless on a table cover or stand;

otherwise the plate and wreath can rest on a green-covered piece of zinc, which should, in that case, be edged occasionally with a fresh row of leaves—small Ivy doing very well, and Camellia leaves being of all kinds the most lasting.

By drying these leaves before using them, or similarly preparing Fern or moss, this outer row might be easily made permanent. The wreath is composed of very small sprays of green little branchlets of Spruce Fir; sprays of Ivy and Myrtle (which latter are among the most suitable); and little bits of Arbor Vite or of Box and Laurustinus.

Geranium leaves, though they are, strictly speaking, evergreen, do not do well here; the leaves requiring to be of a more leathery texture, and of a dark green colour. Very young shoots are also better avoided generally, because of their liability to fade or droop speedily.

The little sprays when chosen have to be carefully deprived of all shrivelled or broken leaves, and a handful being taken together they should be whisked to and fro in a large bowl of water for some moments and afterwards taken and laid on a dry cloth till their turn comes for use.

The foundation "bines" having been selected (the evergreen Chinese Honeysuckle answering well for this, or a long spray of the Banksian Rose), the wreath has to be proceeded with as we have before described, each separate piece of green being bound upon the bine, and arranged so as to make a prettily-managed contrast amongst the foliage, as well as a well-shaped edging. The under side may, of course, be flat, two or three bines forming a sort of ribbon. The pieces have then to form a tiny hedge entirely on the upper side, and they can be put on in a little degree sideways, coming up from the left hand as the artist works towards herself. The workers at these wreaths should wear gloves, as the evergreens are so apt to wound and stain the fingers.

Having made a length sufficient to extend all round, winding on with some dark wool, and making here and there a drawn or slip-knot, the top has to be bent into its proper place at the end, and the whole requires then to be firmly tied together. Laid on the table it should fit very flatly to it, leaving the inner side nearly bare of foliage, while feathering gracefully on the other side. Some persons alter the plan of working by employing a covered circle of zinc perforated with holes ready made for the needle to pass through, and then they work round and round, beginning with the outer edge, and ending with a row of almost upright tiny branches. I never managed this well myself, my thread would always twist so round the leaves; but I did not like sewing the flowers or their belongings, and one never does so well that for which one feels a dislike. The little woven wreaths, too, are so very pretty that it is provoking to have to suggest any other kind; still some people cannot weave them nicely, and they, perhaps, would succeed better in sewing on to the zinc.

The wreath being thus disposed of or the circle of growing Moss, the next thing to speak of is the arrangement of the flowers. For general rules on this point we must wait for another chapter; but now, at any rate, I may give one design for

THE DISH OF FLOWERS.

This must be a July design, and splendid indeed are the materials which then every cottage gardener has ready at his hand.

The difficulty is which to select from amongst so many flowers—the pink and white Roses, the Stocks and Carnations, the Lilies and the Cactuses, the Geraniums and Verbenas. It really is very difficult to know which, amongst so many, we had better decide on using. The difficulty is not an unpleasant one, for there are so many tastes which surely now can all be followed, and in the many months we can generally find some flowers to replace those when July no longer reigns paramount over the summer's course.

Lilies and Roses could not be wrong, I think; yet Lilies and Geraniums are, perhaps, the better for us to describe, as they are so easily substituted by many other flowers; or how magnificent Water Lilies would be in a belt of Cactus. Lilies then, cut separately from their stem, should be laid at the very edge, forming a circle resting upon the dark green wreath around. A few half-open Lily buds may be added also amongst the full-blown flowers. This, again, much depends on touch. If the arranger can lightly arrange the Geranium foliage and leaves, with here and there a Lily leaf, so as to look well at once, the device can be carried up row by row most beautifully; bright scarlet rose Geraniums filling up between the wreath and central bouquet, and great white Lilies.

If, however, the arranger is not pretty certain of getting the right flower into the right place in a graceful way, she had better make a green foundation with a scarlet ground upon it, afterwards letting in the Lilies into their proper places; nor does this plan look by any means offensive.

Whichever plan we adopt, the next proceeding is the introduction of the central Lily group—four or five Lilies gathered together resting on three or four large, cool-looking leaves—leaves of water plants, such as *Caltha palustris*, answer well for this, as they convey the same idea of freshness and coolness.

Few things look more rich than this group, and in some cases even a common soap-plate bordered all round the edge with large, thick, green leaves might need no wreath of any smaller green; with Lilies, certainly, taste dictates large size, and cool colours in the supports.

These dishes are very lasting, and it is an excellent plan to fill them with water, in which "Condy's Patent Disinfectant Fluid" has been mingled. It has a really perceptible effect in cooling as well as purifying a close or heated room, and preserves the water from becoming the least unpleasant, while it has itself not the slightest scent of any kind. Its colour, however, prevents its use for transparent vases.—E.

(To be continued.)

VARIEGATION IN THE LEAVES OF PLANTS.

If the lightnings and storms of 1859 had splintered some aged Oak on the skirt of a forest to such a degree that the life or vitality in the roots could only act on the gnarly buttress-like props around the bottom of the huge trunk, if from them started a coppice-stool-like profusion of young shoots, and if one of these shoots thus brought to life, as it were, was noticed last autumn and during the early part of this summer to be variegated, or have variegated leaves, and the influence of the present Saint Swithun was just now fast vanishing that variegation out of sight, and clothing that branch with the type leaves of the English Oak—'say, if all that had happened in the time, as

very likely was the case somewhere, and you happened to be aware of it, and to be infused with the spirit of vegetable physiology, there are two questions arising out of it which I should like you to answer. The first is, Was it the lightning, or the storm, or the age of the Oak, or the wet season of 1860, or the Potato disease, or one like it, that caused that branch to become variegated? And will the influence of this weather cause all the last year's variegated leaves to turn green, or merely make green those that did and will follow? One condition only will be insisted on, in answering every branch of both questions, and that condition is, that no opinion will be received as evidence. If there is no fact within your knowledge to back an opinion, or a guess, or a reasoning from analogy—for the three are but the same thing in so many words—you are not to come to the examination but as a listener.

"Well, Beaton, what have you got to say about the variegated branch out of the shattered Oak." Got to say! why I have said my say already, and I cannot go beyond the book on it now. But will you allow me to inquire what it is you want to know about it? "We want to know which of the causes which are severally alleged affected the parts, and if you know it; we want also your explanation of the manner or mode in which the affection took place, and how to check it, or how to promote it." I think I clearly know the cause of that branch being variegated, also how the variegation was effected; but about the "affection" I know nothing, only that I could either check it or promote it, now that it has manifested itself so strongly.

It may be now very hard upon 400 years back when that Oak was in the acorn, and there are two ways in which the variegation now in the branch might have been transmitted to the seedling Oak. One way is through the influence, or through the want of some influence in the pollen of the male parent; and the second way is through some accidental injury to the kernel of the acorn. At this point there is no difference between the animal and the vegetable kingdoms. We know that the idiosyncracies of parents are transmitted in the blood to children to some generations, and we know also that certain affections in the wet nurse got into the blood of the infant, and never can get out of it. In the same way, and in two ways only, can variegated leaves be made either through the pollen—and what comes that way is the most permanent—or through some injury or affection in the kernel of the seed, be it an acorn or a peppercorn. There is a third way, but its effects are so ephemeral that science can get little hold of it. Too much or too little indulgence is apt to affect parts of highly cultivated plants, and one of the consequences is some discolouring of the skin, that of the leaves the most often; and the leaf being of two skin thicknesses, the affection in them must necessarily be more than skin deep.

The kernels of the nuts and filberts we crack and talk over after dinner are the wet nurses of the young of those trees; they are the seed-leaves and lobes, and the suckling feeds on them for a while. If they are anyways affected from the usual way of filberts and nuts, that affection will infect the seedlings just in the same way as a want of pollen, or too much of pollen, or pollen not in exactly the right strength would do. But for the first twelve months of the life of that old Oak, a doctor might very easily have prevented any of the shoots from ever coming variegated, as this one has done after the tree stood 400 years without doing it. But as I am not a doctor I must not say how doctors do. Let me rather say what a gardener knows to his cost. He knows that at the end of the second year's growth of a seedling, he has no further control over the affections of his plants; they must then take their course, which was the noose at the end of my last tale. How the things which may affect plants can be checked or promoted, or entirely eradicated out of the system during the first eighteen or twenty months of a plant's life, and how after the lapse of twenty-four months all these remedies go to the region of the impossible, are two points on which physiology has not yet shed its rays, as far as I have heard tell. No doctor or gardener tried his trade on that seedling Oak, and the principle of variegation was thus allowed to take root without hope of cure; and at the end of 400 years an accident gave scope for the production of the mis-called disease. The white in seed-leaves, or the white or variegated leaves which come next after the seed-leaves, I call a principle, merely for distinction's sake. That principle has not the power during the first twelve months to spread itself up, or down, or sideways. If the seed-leaves and the next four or five leaves were now as yellow as pure gold, and you were to cut out their buds any time this next winter, or to the end of next April, you would

effectually eradicate the yellow principle entirely, and no art could get another yellow leaf from that part. Next May the buds at the bottom of the yellow leaves either run into shoots or move outwards from their first bed—their cradle. If into shoots, these would be variegated with yellow and green leaves; if only out of the cradle without running into shoots, the buds can only leave some of the principle behind them, and the thickness of next summer's growth is inoculated with the principle, and you may then cut out the buds as you please; but all your cutting will never get the principle out of the wood after it is once thus inoculated; and it may be hundreds of years before one of the bottom variegated buds had a chance for running off into a shoot, as the splitting down of the old Oak by the lightning gave the original buds on the seedling a chance to shoot, and one of them having the variegated principle in it, came with variegated leaves of course, as soon as it had the chance to go that length. The same thing could have been done in various ways. Some young showman might have caused the death of the head of the old Oak, and compelled the huge trunk to die back by inches, till the buttress-like supports of the tops of the main outside roots were reached—the collar of the tree, in fact, where the principle of variegation was originally seated; then by allowing or by encouraging the roots to force the still incipient buds to run out into branches, the one that had the said principle in it would come variegated, and the "SHOWMAN" might not be twitted for believing that his art caused the variegation; for as long as we allow the fallacy that variegation is the effect of disease, it was but a natural conclusion that he arrived at after all.

That the principle of variegation can be transmitted by inoculation we all know, but the instances are so very few on record that we may believe the thing to be a rare exception to a general rule, that it cannot be so transmitted. The bud of a variegated Jasmine is the only instance I can call to mind where the principle has been diffused over a whole plant. If you once admit that by a certain chemical condition of the fluids in a plant, or of the moisture which the roots suck from the ground, you can alter the original form or colour of plants or parts of them, you must follow out the idea or principle to its ultimatum; and, if you do that, the stock on which a variegated plant is worked must at last come within your rule and become variegated also; for, if you can, by manipulation, alter the curve of a single leaf, your principle, be it from chemistry or medication, must apply to every other part of the plant as well. There is a way, however, in which I think variegation might be got into a green branch, and it would not be a bad experiment to try it. Suppose a variegated plant is grafted, and the stock has a green sucker or shoot long enough to be inarched into the variegated part, up among the variegated leaves, not on a bare part of the variegated head, but where there would be leaves behind as well as above the inarched part. If the green shoot was not more than one year old, you could not expect it to be able to take on the variegated form, because the original buds on it are still in their first bed—their cradle say—and they never alter, nor can be altered, in condition, as long as they are in their first bed, for that seems a principle which pervades the whole vegetable kingdom; but during the second year's growth such buds are removed the depth of that year's growth from their original position, their points are out on the surface of the bark, and their roots only, as it were, are in the first bed. In figurative language, physiologists say that wood is made from the roots of buds; and I assume the buds to hold a communication or passage between their basis and their first beds, and these roots have the same property as Dock roots. You may destroy a bud, but if it is out of its first bed, its roots will push and make shoots just like Docks, and that is the reason why any principle that is originally inherited by one of these buds can never be eradicated from the system after the end of the second year's growth. Now, my idea is, that the green shoot to be inarched into a variegated part should be rising three years old—that is, the next spring after two season's growth, when the roots of the buds are established and no more—say in operation, or ready for operation, but in the youngest possible state in which they can act at that stage, and not before it, certainly, and scarcely much after that period. I think it is possible to induce or inoculate variegation into a green branch. The roots should be called cells rather; but that, in popular writing, does not carry the same force to the mind of the reader, who may not know more of cells than he reads of in the police reports. When roots are very young, like the first cells behind a bud, if they can take

on a change at all, that is the time when they are in the most likely condition to do so.

If one could follow up this principle as far as it goes he would be a philosopher about plants, and he could tell of where a fixed star or a wandering comet could be seen, with the same precision as they do about the stars. After the September of the second year of a bud's age, and before the end of the ensuing May, there is a new experiment for every week of the time, and any one of the experiments that would succeed I am convinced would make a fair fortune to a nurseryman. The so-called purple Laburnum is merely the result of an accidental form of one of such experiments. No disease or decrepitude was the parent of that sport so-called, and it is the first inhabited house after we are ferried over the stream of crossing by means of the pollen; but it cannot stand alone in a fertile land of promise.

But I did not explain about the kernel of the acorn so clearly as I intended. It is quite possible that some disease, something like the Potato disease, might affect the kernel without touching the germ which sprouts and makes the Oak. The kernel being as the wet nurse to the seedling, would in that case very probably communicate the disease to the first few leaves and buds, and that is the only hypothesis on which I would admit disease to be the parent of a variegated leaf. All the large nuts, beans, and kernels with great substance, hold out the nursing to the young seedling for a long period after the roots get to play on the system, and if disease can be thus inoculated, and one of these is in that state, one could imagine it possible that the juices of a whole plant might be tinted that way, and that under certain conditions of that it would throw off variegated sports—that is possible but not proved. But about the common variegation of our cultivated and even our wild plants, I have had one hundred proofs in my own limited practice, that they are the effects of certain conditions of the pollen, and that they cannot be imitated by manual process; that all of them can very easily be eradicated from a seedling during the first year of its existence, but that after the first impression or fruit-buds move outwards and leave a trail behind them, nothing on earth will free the system of the plant from that peculiarity. There is one thing about this subject I should like to know, and that is, Does the variegation in a seedling which is confined to one or two, or a few buds and leaves without any shoots from them, increase or diminish in intensity with the age of the plant, supposing the plant had gone on for ten years before one of those tainted buds had an opportunity to get off in shoots? Would the shoot be more variegated if it came at the end of the ten years, than it would be at that of the second or third year? The variegated leaf, like all green leaves, puts the whole of its strength to feed its own bud the first year, and I have put my foot, unwittingly, in it, by saying so against the best practice and the soundest philosophy of this age; but it is very easy to prove who is right, Nature or such philosophy. Cut down an Oak, an Apple tree, a Vine, a Willow, or a Bramble, and allow two shoots only to rise from each stump. Let the two shoots be as nearly alike as one's two little fingers, and let them be kept on that balance for a whole growing season, by elevating or depressing one of them as their growth may suggest. Then begin to diseal one of the shoots as soon as the second leaf is unfolded, and never let one leaf, except the top one, expand on that shoot the whole season, and let us hear in October of the difference in size and weight of the two shoots. Dr. Hogg knows or rather has heard of the story before now.

D. BEATON.

I AM glad to see that endeavours are being made in the columns of THE JOURNAL OF HORTICULTURE to explain the cause of variegation in the leaves of plants; and I agree with your correspondent "NICKERBO" that the subject is well worthy of investigation, and of great importance to all interested in the decoration of the conservatory, flower garden, &c. But with all due deference to such an authority as Mr. Anderson, I can hardly bring myself to look upon variegation as disease; nor do I believe with "OLD SNOWMAN" that defective drainage, or the roots absorbing water in a state of decomposition (if this be possible), will ever produce regular variegation. Although the former very frequently produces a bleached and sickly appearance, which may be mistaken for variegation, although evidently entirely distinct from it.

One thing, however, must be admitted, which may go far to support Mr. Anderson's views on the subject, and that is, that variegation is, I believe, invariably accompanied with a considerable diminution in vigour of growth. Some years since I raised

from seed a Zonale, or Horseshoe Geranium, which, having its centre pinched out when a few inches high, threw out three stems, and each stem entirely distinct from each other—I mean distinct varieties. One variety with green stems of very robust growth, with very dark zone, and with large globular truss of scarlet flowers; another with white or coral stems, foliage of a paler green, and of a more dwarf and spreading habit; and the third with silver-margined foliage, and a very clearly defined crimson zone. In each instance the flowers were identical, only largest in the green-stemmed variety and smallest in the variegated one. The varieties may now be found in many gardens under the names of "Emperor of the French," "Empress of the French," and "Rainbow."

Now, this variation may have been caused by disease, but, if so, it certainly assumed in this instance a very beautiful form; and I am rather inclined to say with "NICKERBOCK" that there is in the workings of Nature that which man cannot yet account for nor explain.

There seems to be an opinion that variegated plants are mostly, if not always, obtained from *sports*, and not raised from seeds; but this is by no means always the case, for I could point out more than one variety of variegated Geraniums which have been variegated from the seed-leaves, and have never produced an entirely green leaf. I have raised many Zonale Geraniums from seed, but I have never known one yet to produce a variegated sport, unless they had previously shown variegation—viz., white or yellow markings in the seed-leaves.

Can any of your readers give any information concerning the origin of the well-known variety called Golden Chain? For many years I tried to improve upon this variety, and had almost given the matter up in despair, but that at last I have been rewarded with success the accompanying leaf and flower will prove; and the plant from which they were cut claims Golden Chain as its remote ancestor of some eight or ten generations back.

I should certainly not have expected the result which Mr. Anderson obtained by crossing the scarlet with the white-flowered variety, but I have similar experiments on hand at present, and may in time report to you the result; and in the meantime, as the subject is certainly interesting to gardeners and men of science generally, I trust that it may be fully discussed in your pages; when facts may be elicited and opinions given, which may lead to important results.—G.

[The leaf which "G." enclosed is nearly 4 inches across and has a green centre, on the outside of which is a bright crimson zone, which is darker where it is traversed by the green centre; and on the outside is a broad, bright, golden yellow band, which also traverses the crimson zone inwards, and penetrates the green centre. The flower is a deep, bright scarlet. Send us the result of your experiments.]

Your seedling is the next best of the crimson and yellow-zoned leaves after Mrs. Pollock. For eight or nine months in the year, the leaves of this section are as welcome and as gay for the conservatory, as are the flowers of most other Geraniums; but for three or four months in the summer, there is none yet to be depended on to keep quite true to the right tints. Your plant is valuable, so take good care of it; but we have one just like it.]

SYNONYMOUS FUCHSIAS.

I SHOULD be glad if, through the pages of THE JOURNAL OF HORTICULTURE we had a revision of the great number of Fuchsias sent out to the public under different names. I have been a purchaser of about twenty of the newest, and what were supposed to be the best; but now they are come into flower I have discovered out of the number the following sorts, which are alike in habit of growth and flower:—Duchess of Lancaster, Fairest of the Fair, both the same; Prince of Prussia, Eclat, both the same; Guiding Star, Venus de Medici, both the same; Lord Macaulay, General Williams, both the same. Now, if my purchase is to be reduced in this proportion, I think that you will agree with me that there is great necessity for revision in the trade lists.—JAMES ROLLINS.

[You should refer to the person who supplied them.—EDS. J. of H.]

CHERRY WATER.—Everywhere in the northern cantons fruit trees are standing like forests; and there is not only a brandy distillery in almost every commune, but also a cider mill. Pears

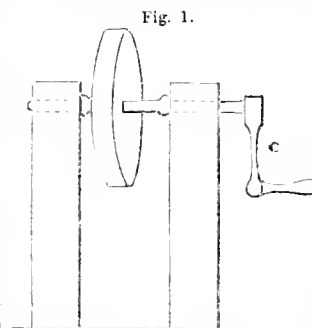
are pressed for their juice, and Cherries crushed to make what they call cherry water. We one day saw a decanter upon a table filled with what we supposed to be water, as it was colourless, and we had never seen any stronger liquid without some slight tinge of yellow, red or purple. Being thirsty, we thought to help ourselves, and took a generous draught, which in an instant had pervaded every drop of blood in our veins. It was cherry water, but it surely deserves a more significant appellation. It is made by crushing fresh Cherries and pounding them, as the juice is expressed from Grapes. They are then kept slightly warm till fermentation takes place, which sometimes happens the second, and often not till the fourth week. The tub remains covered, and the pulp is stirred every two days. It can then remain a long time without injury, or be immediately distilled like brandy. So long as it runs clear, it is of the right taste and consistency; but when the liquid is thick, it is put back with the pulp in the still. To prevent its taking fire before it begins to boil, it is stirred violently. Like good wine it improves with age. An imitation is sometimes made of Plums, but can easily be detected by mixing it with a few drops of water, when it looks murky, and, if rubbed upon the hands, has a different flavour.—(*The Cottages of the Alps; by a Lady.*)

MECHANICS AND MATHEMATICS APPLIED TO GARDENING.

(Continued from page 292.)

WHEEL AND AXLE.

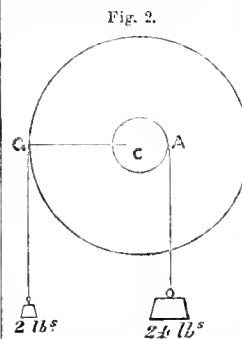
THIS mechanical power, a wheel with an axle fixed in its centre, has been called "the perpetual lever," and justly, because half



the diameter of the wheel acts without ceasing as the long arm of a lever; half the diameter of the axle is the short arm of the lever; and the centre of the axle is the fulcrum.

We will take a grindstone as our illustration. It is really a lever moveable round an axis fixed to it; for when a lever is moveable upon an axis and is capable of being turned entirely round, it assumes the character of a spoke, or half-diameter, of a wheel. This will be more

clearly understood by fig. 2 representing the grindstone endwise. The two weights hanging in opposition to each, the one on the



outer edge, or periphery, of the grindstone, at G, and the other weight on the outer edge of the axle at A, act precisely in the same way as if a lever was horizontal from G to A, having C, the centre of the axle, for its fulcrum. If from C to A is 1 inch, and from C to G 12 inches, then to balance 2 lbs. at G will require 24 lbs. at A.

In order to reduce the force shown above to be required to turn a grindstone, a counter-lever, or crank, C, fig. 1 is attached to the axle. If the crank be of exactly the same length as from G to C, fig. 2, or, in other words, if the crank be equal in length to the semi-diameter of the grindstone, then the force required for balancing the grindstone and the 2 lbs. suspended at G, will only be 2 lbs., instead of 24 lbs., as were required without the crank. If the crank be longer than the semi-diameter of the grindstone, then less force than 2 lbs. will be required to balance the 2 lbs. at G; so, on the other hand if the crank be shorter than from G to C, then more force than 2 lbs. will be required for balancing the 2 lbs. at G.

Now, balancing that 2 lbs. at G is, in other words, turning the grindstone; and we may observe that the adding of the crank, or winch, does not alter the principle but only the

appearance, and if it could be greatly increased in length the force required for turning the grindstone would be as greatly reduced, but the length of the crank is limited by the extent at which it can be commodiously worked by a man, allowing his body to be bent so as to comply with the rotatory motion of the handle and to give it sufficient force.

The 2 lbs. suspended at G represent, only in other terms, the pressure of a tool while being sharpened; and the greater the pressure, so, in other words, the greater are the number of pounds suspended at G, and greater is the force required to be applied to the counter-lever, or crank, C.

The pressure of the tool while sharpening is a powerful application of friction; friction also has to be considered in connection with the axle, but it will be the subject of a separate chapter.

(To be continued.)

CULTURE OF THE GRAPE VINE.

(Continued from page 318.)

SUMMER TREATMENT.—The Early Vinery.—When Grape Vines have been forced early, so as to have the fruit ripe in May or June, the wood, of course, is ripe early also; and should the summer following be above the average in temperature, there is great danger that in August or September the buds may break prematurely, and then the crop of fruit the following year will be in a great measure destroyed. To prevent this misfortune the cultivator may adopt either of the following methods. If the glass is moveable he should take it off as soon as the last fruit is cut, and expose the Vines to the full influence of the weather, allowing the laterals and end shoots to grow without stopping them; replacing the glass when the nights become colder. This would spend, as it were, the growth, without causing the fruit-bearing buds to break. The growths would naturally cease when the days become shorter, and the nights longer and colder, and thus a perfect rest would be attained in time before the pruning season arrives. On the other hand, if the glass is fixed, then the only plan is to give abundance of air night and day, and shade the house from the sun through the summer months to keep the internal air as cool as possible. The shading should be at a little distance from the glass to allow a circulation of air between them, which would keep the glass cool.

The best kind of shade is either tiffany, or, what is better because it is stronger, Britain's netting—a kind of shading that is not so well known or used as it deserves to be.

SUMMER TREATMENT.—The Summer Vinery.—On this point I need not dwell. The same treatment as to thinning the bunches, stopping laterals, syringing, &c., as that I described for Vines in a plant stove, suits them exactly. In a vinery however, there is this advantage, that when the fruit is ripe the internal air can be kept drier, because no watering of plants in pots will be needed, for the simple reason that there are no plants to water. As in the case of the earliest vinery, this second house or houses should have plenty of air on all favourable days; but in wet, muggy weather, a little artificial heat will be useful to dry up the damp that will arise from the internal border. Where convenient, it is a good plan to cover the border with clean slates. Should it be necessary to wash the floors for the sake of cleanliness, it should be done early in the morning when the day is likely to be fine, and the water should be mopped up as dry as possible, in order that no damp may appear at night. Damp is a great destroyer of ripe Grapes: hence it cannot be too sedulously guarded against. When all the fruit is gathered, then a strong syringing on some fine morning will do good, inasmuch as it will clear the leaves of dust, and bring down any red spider there may be on them. After that the Vines may have a sort of half-pruning—that is, the lower laterals may be cut off, which will let in more light and air to the real fruit-bearing shoots.

The summer treatment of the late vinery is simple and easy; all that is required is the usual routine of stopping the laterals, thinning the bunches, &c. As the autumn advances it will be necessary to light the fires to raise the temperature to the proper standard of heat.

HEAT.—In all vineries the heat during summer should be, during the day with sun, between 70° or 72°; without sun, 65° to 70° will be sufficient. During the night it may be allowed to fall 5° or 7°. I by no means approve of a low night temperature for the Vine during growth and maturation; neither do I think that a high day temperature is an advantage, but is

quite the reverse, causing long joints, weak shoots, and abortive buds.

WINTER TREATMENT OF THE VINERY.—Pruning the Early.—When very early Grapes are required, then the Vines should be pruned the first week in October, and kept cool for at least six weeks. The forcing then would commence about the middle of November, previous to which the roots should be looked to. If, as I recommend, the entire border for this house is inside and heated below, that border should have a good dressing of manure on the surface, and a good soaking of water, and the heat applied underneath. This would cause a commencement of root action and set the sap in motion. The fires should be lighted then, and the forcing commence very gradually: 45° the first week, 50° the second, and 55° the third, and so keep advancing the temperature till the maximum heat of 70° is reached. By that time the buds will have broken strongly and equally, and may be thinned by disbudding, so as to leave a sufficient number for a fair crop of fruit. A moistish atmosphere should be kept up by syringing the pipes and the Vines in the morning only. The nights are at that season long and often very frosty, and, therefore, a rather drier internal air is to be preferred during the night. Every sunny day give air, being careful that no cold blast rushes in over the tender young leaves. As soon as ever the bunches are perceptible, stop the shoot at the joint above the bunch. Keep the shoots tied in to the rafters, but not too closely. The best arrangement is to have three wires, one for the stem, and one on each side to tie the fruit-bearing laterals to. By this time the days will be lengthening and the Vines will come into bloom. At that early season it will be useful to help the setting by giving the vines a smart shake now and then, in order to disperse the pollen.

With these attentions daily attended to, all things else in proper order, these Vines will bear a fair crop, and will ripen about the middle of April or beginning of May.

WINTER TREATMENT.—The Summer Vinery.—The winter treatment of the Vine that has borne a summer crop of fruit consists in gradually reducing the internal heat as soon as the wood is ripe, half pruning them by cutting away the superfluous laterals, and allowing the leaves to fall of their own accord. They may then be pruned, and either tied up to the rafters or brought down to the front and tied in bundles are recommended for Vines in a stove. The vinery may be made use of in winter to shelter half-hardy plants, or bedding-out plants; to preserve which a temperature a few degrees above the freezing-point may be kept up without any injury to the Vines, only take care to remove them when the Vines require more heat. It is a mistaken notion that the Vine must be subjected to several degrees of frost in order to induce perfect rest. The winter of 1860-61 has been fatal to many Vines, to my certain knowledge, by being exposed to such severe weather.

The Vines in this second house may be started about the end of February, and treated the same as to gentle forcing at first as described above for the early vinery. Remember to clear the stems of the loose bark, and dress them with a composition of sulphur and clay to destroy insects and mildew.

WINTER TREATMENT.—The Late Vinery.—This house will require heat through the earlier part of winter to ripen the fruit, and wood; keep every part dry, and give air on all favourable occasions. By the time the fruit is all gathered winter will be nearly over, and then the Vines should be kept growing through the spring months, and pruned and be put to rest early in the summer, and that rest prolonged as long as possible. They will start into growth, and should be grown on as slowly as possible, in order to cause them to come in ripe late in the autumn, and continue in perfection through the winter months. These three successions will, if properly managed, give Grapes for the dessert all the year round.

DISEASES.

SHANKING.—This disease is a sort of ulcer or gangrene on the footstalks of the bunches, causing that part to decay, and, consequently rendering it useless. The cause of this is, I believe, the soil being too cold during the time of growth, the sap rises too slow for the rapid growth in the warm vinery: hence, the Vine being deficient in sap, some parts must suffer, and the most tender parts—the footstalks of the blossom show it first. If the roots are examined when shanking appears, they will be found discoloured and unhealthy. The remedy will be easily suggested—let the soil be warmed, and then the root action will be secured; and thus there will be congenial relative between the leaves and roots.

SHRIVELLING is when the berries do not swell equally alike. Frequently the lower parts of the bunch will be totally lost, and the berries remain stationary and become sour; they then shrivel up, and are, of course, worthless. Like shanking, this disease arises from the state of the border. The effectual remedy is to lift the Vines, make a new border in the proper manner, and replant the Vines, if not too old; laying the roots in not deeper than 9 inches from the surface, and warming the soil, either by a heated chamber underneath, or by a covering of old leaves and littery dung, sheltering it at the same time from heavy cold rains or snow by a canvass or covering of boards, or even thin turf laid all over it closely.

THE SPOT.—This disease attacks the berries only, and is akin to shanking. The Canon Hall Muscat is peculiarly liable to this complaint. It is caused, no doubt, by partly the state of the roots, and also by sudden changes of the temperature inside, and also by the sun shining upon a drop of water on a berry exposed to its influence. The remedy is obvious: put the roots in a right temperature, watch the vicissitudes of the change of the external atmosphere, and, in giving air, see that the cold air does not rush through upon the fruit; and, lastly, let the fruit be shaded from the rays of the sun, either by the natural shade afforded by the leaves, or by a shading outside of netting.

RUST.—This is sometimes supposed to have been brought on by handling the berries during the thinning process, or by the operator's hair coming in contact with the berries; but, if neither of these supposed causes have happened still the rust appears, I believe it arises from a too high temperature given whilst the fruit is small, causing a too rapid accumulation of sap, which the skin cannot swell fast enough to receive: hence a thickening of that part which renders it rough and rusty: hence it is necessary always to force moderately. The old proverb, "Too much haste the less speed," applies to forcing fruits as well as any other pursuit in life.

MILDEW.—Perhaps of all the diseases to which the Vine is liable this is the most formidable. If examined by the microscope it will be seen to be a form of small fungi or Mushroom tribe, the roots of which penetrate the epidermis, sucking out, as it were, the juices, and stopping the healthy respiration. This disease is brought on by cold, damp weather, because that is favourable to the growth of the fungi.

The flowers of sulphur are destructive to this parasite: hence the application of that substance is the cure. I always apply it as soon as I perceive the first appearance of the disease, and always found it an effectual cure.—T. APPELEY.

(To be continued.)

ROYAL HORTICULTURAL SOCIETY.

JULY 23RD.

FLORAL COMMITTEE.—This Meeting, as announced, was held at the Chiswick Garden, as its object was not merely to decide on the novelties that might be brought forward, but to examine and decide about the various kinds of annuals and bedding plants which had been sent there on trial. It was upwards of twenty years since I had last been there, and then Chiswick was notorious for exclusiveness, bad gardening, and jobbing: it was the last place in England where any one would go to get instruction on any one subject connected with horticulture. Now, however, all this is changed; and under Mr. Fyles' skilful and careful management the experiments are carried out with vigour and success. If any one, *e.g.*, desires to know how Vines and Cucumbers in pots can be done, let them go there and ask to see the two pits which contain the collection, and I venture to say they will open their eyes with astonishment. The same applies to every department; and with the increased means at the Society's disposal, and with the able and efficient staff it has now, we may confidently expect that Chiswick will be looked up to as the source of much information to the gardening world in general.

But few objects were presented for the approval of the Committee. The most attractive (to me, at least), being a box of seedling Picotees from Mr. Charles Turner, Slough—a class of flowers which the bedding-out mania has driven out of the field nearly, but the love for which I yet hope to see revive. It contained—Flower of the Day (Norman), a splendid, heavy-edged scarlet flower, of great density of colour, pure white, and without bars; in colour something like Green's Queen, but of a most excellent constitution, which, all growers know, could

never be laid to the charge of Queen. Rosy Circle (Payne), a very exquisite, light-edged rose, raised by an enthusiastic florist, who is waiter at the Star Hotel, Oxford. It is quite a novelty, the edge being quite like a thin wire of rose, no bars, and better than Mrs. Barnard in her best state: this, also, is of vigorous constitution. For both of these First-class Certificates were justly awarded. The Hon. Mrs. S. Annesley (Rutland), a heavy-edged red, but, like all of that class, too much colour at the back of the petal, giving it a muddy look in the white. Mrs. Hole (Turner), bright, light-edged red flower, somewhat in the style of Eugénie, but purer in the white. This received a Label of Commendation. Lady Elcho, a light-edged purple, very full and large, a little irregular in the barring, but an attractive flower; and Favourite (Norman), a light-edged purple, very smooth and evenly marked, and of good substance. Altogether a most excellent lot of seedlings.

Mr. Bull sent *Coleus Verschaffeltii*, *Azalea Dunani*, *Maranta orbifolia* (a stove plant from Brazil), and again (!) *Calceolaria Sparkler*.

Messrs. Smith, of Dulwich, contributed a most beautiful collection of Balsams, some of which were marvellous for the size of the blooms and their double character. For these a Special Certificate was awarded.

Mr. G. Smith sent a dwarf bedding Geranium, *Firefly*, somewhat in the style of *Scarlet Queen*, with very well-defined horse-shoe foliage, free-flowering, and likely to prove an acquisition. For this a Label of Commendation was awarded.

Some seedling *Amaranthus* were sent by Messrs. Veitch & Son, of Chelsea. They were of very various and striking colours; and one of them with dark purple leaves received a Label of Commendation. A *Lobelia*, which had been sent from Champion Bay, West Australia, to the Society's gardens, was considered pretty, having dark purple lobes; but not good enough, owing to its habit, for bedding purposes, nor sufficiently distinct to merit any award. Nothing else of any moment was contributed.

The Committee then adjourned to the gardens to examine the various objects to be submitted to it. "*Hic labor, hic opus est.*" Mr. Moore had with infinite care and patience prepared his books. There were long rows of annuals, Stocks, and Phloxes; beds upon beds of bedding Geraniums, and Verbenas, and Petunias. Every kind had been entered, and the Committee with a deal of patience proceeded to their work.

As the result of the day's work will appear in the Society's "Proceedings," it will not be quite the thing to give any detailed report. Suffice it to say that nearly all the annuals of last season were condemned; and unless the double Zinnias of M. Vilmorin prove to be better (which I hear they will do) than those at the gardens, the old single is not yet outdone. The long border of Stocks, with the exception of three or four sorts, was considered very inferior; but of the Phloxes many were pronounced of very superior quality: Mr. Punch, Liervallii, Lord Byron, and others being very fine. A little progress was made with *Scarlet Geraniums*, but it was considered that in another month the Committee would be better enabled to judge on their merits; and the public may rest assured that, whatever the decisions are, they are not come to without careful thought and the opinions of competent judges being fully expressed on each sort. It is now quite time to weed out of the many varieties a good many. We do not really want more than five or six varieties of each sort.—D., Deal.

ERECTING AN ORCHARD-HOUSE.

I AM erecting a building which I shall not call an orchard-house, as it is to be heated sufficiently to exclude frost, but in which I expect to grow a few fruit trees in pots. The framework, which is already up, is on Mr. Rivers' principle—rather higher (a few inches only). Its dimensions are 60 feet by 24 feet; span roof, divided into two in centre. I wish to keep the frost out of both compartments, and to heat one of them to warm greenhouse temperature. The ventilation is a shutter on both sides 1 foot 3 inches from the ground, and 10 inches aperture, and a ventilator along the ridge of roof, as much or as little of which as is desirable can be opened at a time. The house lies ends to N.N.W. and S.S.E., and is situated in the north-east of Ireland.

Under these circumstances I would be much obliged by your answering the following queries, if convenient, in an early Number of *THE JOURNAL OF HORTICULTURE*:—1st, What

description of glass would be the best consistently with the greatest (possible under the circumstances) economy to use? and keeping in mind that the breadth between the rafters is 12½ inches, what length would you make the panes in the roof? 2nd, What quantity of hot-water piping of what diameter would it require to keep all possibility of frost in command? and what additional quantity would it take to keep up heat enough in the other compartment for plants requiring a warm greenhouse or cool stove? 3rd, What boiler do you recommend? and do you know anything of the cruciform boiler by Micklejohn, of Dalkeith?

I have seen several times in your paper a statement that peat soil, such as is found in bogs in Ireland, is unfit for growing *Rhododendrons* in. I have grown them in the soil (a small sample of which I enclose) for twenty years, and my predecessor for twenty more, with no addition but a little sand from the shore of Lough Neagh; and I challenge any one to show more healthy and thriving plants, either of the common and new hybrid kinds or of the *Sikkim*. I have a plant of *campanulatum* in the open air, 12 feet high and 40 feet in circumference, which is covered with flowers every spring.—R. S. D.

[For your house 24 feet wide your ventilating shutter of 10 inches is not enough. It should be at least 20 inches—2 feet would be better. One hot day, with an aperture on each side of 10 inches only, would ruin all your trees. With a two-foot shutter in each side you would not require roof ventilation, which is expensive and troublesome.

The best glass would be 21 oz., the most economical in the first instance 16 oz.; but you will have more breakage from frost and accidents with the latter. If your width between rafters is 12 inches, you may have the glass in panes 20 inches long.

You must have two rows of four-inch pipes in that portion of the house devoted to orchard-house culture to ripen your fruit early and well; and four rows of four-inch pipes in that part of your house devoted to greenhouse plants, to keep out, as you say, "all possibility of frost."

We cannot recommend any person's boiler as advertised. They are all good.]

CULTURE OF VINCA ROSEA.

WHEN in Paris last autumn I saw a charming flower in some of the shop windows, and having found out the name, I procured some seed from a florist. As I wanted to know something of its treatment, I asked about it at Covent Garden, where it seemed to be quite unknown. I sowed it last spring in a hotbed. It came up very slowly, and has been in small pots for the last two months; and, though looking quite healthy, is only a couple of inches high, and does not seem inclined to increase. Can Mr. Beaton tell me what to do with it? It is called *Perranche* de Madagascar [This is *Vinca rosea*.—R. H.], and when in bloom is about 8 inches or 10 inches high; the blossom something like a *Phlox*, but some four times larger. I think of putting it again in a hotbed, as its growth seems stationary. It is so very pretty I wish I knew what to do with it. Could it be a biennial, and not flower this season?—GOWRAN HALL.

[The name of your plant in Paris is not spelled *Pervanche*, but *Pervenche*. In Rome it is called *Pervinea*, and in Madrid just the same as in Rome. *La Pervenche* de Madagascar, or *La Pervinea* ditto, is a favourite plant, and will be found in great quantities in all the gardens in the world within the Tropics, and in a narrow belt round the globe just outside the Tropics; and it is as well to know the name given it by foreigners. In all British possessions, as well as in Britain, it is called the Madagascar Periwinkle, or *Vinca rosea*. It is a stove plant with us; but if there was such a demand for it in Covent Garden as is in all the continental cities, our people could do it in hotpits, such as for succession Pines. In every other respect it requires exactly the very same kind of treatment as they give to the best show *Pelargoniums*. It comes from cuttings quite as easily as the Crystal Palace Scarlet *Geranium*; and the cuttings of last February will be in the Paris flower-market ere now and on to the end of September; and it is worse than paying through the nose to go to the extravagance of having it from seeds. The best thing that you could do with your seedlings, and the only thing that we would think of if they were sent to us, would be to throw the pot, seedlings and all, right over the garden fence as far as we could pitch it. You

may spend ten years over them, and then not get a bloom worth looking at. We never received a parcel of foreign seeds from non-botanicals without a large share of the *La Pervinea*, or *Pervenche*, as the case might be. We have cast away as useless as much seeds of *Vinca rosea* as would plant the county of Middlesex at a foot apart each way; and the only real useful advice we can offer on it to all our British readers is, to cast it off as perfectly useless to them. One nicely-rooted plant, by the end of March, can be bought here for twelve pence, and by giving it bottom heat in a frame, and three shifts before the middle of July, one could have a plant of it of double the size it is generally seen in Paris. All our great country gardeners grow lots and lots of it to be ready for the conservatories by the time the London season is over, and it will stand in the drawing-room, or up each side of the grand staircase, or on pedestals along the corridor, as well, and better, than most *Pelargoniums*. When it has done blooming it is allowed to get as dry as a *Geranium*. In that state it is cut close, or half or three parts close before winter, according to the stock of cuttings required in February. The "stools" or these cut-down-plants are kept half dry in the stove during winter, shaken out of the mould in the spring, the roots cut back, and after being put in small pots they are plunged in bottom heat, and on with them swimmingly till they show bloom, then show them off.]

NATIVE ORCHIDS.

THESE singular yet beautiful tenants of our woods and fields, some of which are so rare that they often live and die unseen by the eye of man, are rarely offered for sale by nurserymen, as they are not profitable stock, not easily obtained, and, when got, do not increase freely. They would be more common in our gardens were it not that some kinds are so uncertain in appearance that we cannot depend on their flowering two years together: one year they may flower well, the next our care may not be rewarded with a single flower. Seven years since, when on a visit up Wharfedale, I collected a few varieties; but owing to my having to remove them during the growing season, I did not succeed very well with the few I got, and the offsets were so small as not to be worth keeping. To the collector of English Orchids, Wharfedale is an interesting locality. In the upper part of the dale in the woods near Arncliffe and Kettlewell, grows the rare *Cypripedium calceolus*. It is sometimes, though not so common as formerly, found near Settle. Many other rare kinds may be found in crossing the wild and desolate moors between the rivers Wharfe and Aire. A month since I had the rare pleasure of seeing a small collection of well-grown specimens, owned by a reader of THE JOURNAL OF HORTICULTURE, who, if he reads this, may do good service by informing others how he has so successfully grown his stock. There are few amateurs who, if they were willing, could make a collection of native Orchids owing to the kinds being scattered over so many counties. Let those who wish to do so try the system of exchanges, and I think they would be amply repaid for all their trouble. The poet says—

"Do something for each other,
Though small the help may be;
There's comfort oft in little things
Far more than we can see."

—RUSTIC ROBIN.

[We, and our readers, would be glad to have a little more information on this interesting subject. Will the reader of THE JOURNAL OF HORTICULTURE, if he reads this, favour us with a few notes?—EDS. J. OF H.]

EFFECTS OF THE LAST WINTER IN LEICESTERSHIRE.

ACCORDING to my promise in April last, I send you an account of the effects of last winter on my shrubs.

My garden is in the north part of Leicestershire, about 300 feet above the level of the sea, on the eastern slope of some hilly ground, part of Charnwood Forest. The aspect east by north, nearly due east, and quite exposed. Twenty years ago it was a stone quarry, and, consequently, the surface is uneven. It is thoroughly drained. The soil is of a stony and rather sandy character, but has been improved by manure, soil, and marl so as to grow good garden crops. All shrubs grow well in it. In the spring vegetation is about a week or ten days later than on the

ground below; but the autumn continues from two to three weeks longer, and generally my shrubs have almost escaped, when those below have been injured. Very few of mine were injured by the frost in October, 1855.

N.B.—When I state “killed to the ground,” it must be understood that the plants are now growing.

Cotoneaster microphylla, twenty years' growth, kept along the ground for seventeen yards, and 3 feet high, killed to within 18 inches of the ground. *C. acuminata*, and *C. affinis*, 6 feet high, killed to the ground. *C. rotundifolia*, 2 feet, ditto. *C. marginata*, ten years' growth, rather injured. *C. thymæfolia*, two years', on rock, ditto.

Berberis aquifolia, *B. empetrifolia* (on rock), *B. glumacea*, and *B. Darwini* (on rock), several years' growth and all uninjured. *B. Fortunei*, 2 feet, killed.

Arbutus unedo rubra, twenty years' growth, killed to the ground. *A. mucronata* and *A. uva-ursi* (on rock), seven years, uninjured. *A. andrachne* and *A. hybrida*, 9 feet, killed.

Andromeda floribunda, 3 feet, uninjured. *A. polifolia*, 1 foot, killed.

Gaultheria shallon, 2 feet, uninjured.

Forsythia viridissima, 6 feet, slightly injured.

Vaccinium myrtillus, and *V. vitis idæa*, several years' growth and uninjured.

Oxycoecus macrocarpus, ditto.

Deutzia scabra, and *D. staminea*, 5 feet, and uninjured.

Cydonia japonica, *C. japonica alba*, and *C. japonica atro-sanguinea*, 6 feet, against rock, and uninjured.

Caprifolium Douglassi, *C. sempervirens minus*, and *C. longiflorum*, 6 feet, and uninjured.

Pernettya angustifolia, *P. mucronata*, *P. phyllæreæfolia*, and *P. speciosa*, several years' growth and injured.

Genista triangularis, *G. triquetra*, *G. saxatilis*, *G. radiata*, *G. sagittalis*, and *G. tinctoria flore pleno*, sere-like and on rock.

Alyssum saxatilis, and *A. deltoideum*, sere-like and on rock. *Aubrietia purpurea*, *A. deltoidea*, and *A. Mooreana*, sere-like and on rock.

Helianthemum pulchrentum, *H. croceum*, *H. kermesinum pleno*, *H. roseum semi-duplex*, and *H. venustum*, on rock, part of each killed.

Cistus roseus, and *C. formosus*, 2 feet, on rock, killed.

Iberis sempervirens (6 inches), and *I. saxatilis*, on rock, uninjured.

Spiræa arifolia, *S. prunifolia flore pleno*, *S. bella*, and *S. callosa*, 4 feet, uninjured. *S. Reevesiana flore pleno*, 4 feet, killed to the ground.

Jasminum elrysanthemum, uninjured. *J. ochroleucum*, 6 feet, against rock, killed to the ground. *J. Reevesii*, uninjured.

Phlox subulata, *P. proeumbens*, and other *Phloxes*, uninjured.

Ceanothus dentatus, 6 feet, killed.

Limonia lauricola, 1 foot, slightly injured.

Myrica gale, and *M. cerifera latifolia*, 1 foot, uninjured.

Skimmia japonica, 1 foot, uninjured.

Buddleia globosa, 6 feet, killed.

Magnolia tripetala, parts of last year's growth killed.

Morus nigra, parts of last year's growth killed.

Chimonanthus grandiflorus, 2 feet, ditto.

Pæonia arborea, 1 foot, killed to the ground.

Yucca gloriosa, 2 feet, killed to the ground.

Laurus regalis, 9 inches, severely injured.—J. G.

(To be continued.)

THE CAPE OF GOOD HOPE VINEYARDS AND THE VINE DISEASE.

(Official Report.)

(Continued from page 238.)

PROCEEDED to the place of Mr. Peton, containing about 90,000 Vines. The disease pretty general here, but not very intensely developed as yet. Last year the Pontao and Green Grape was slightly affected with the mildew on the dry parts. The Vines growing on the dry exposed places appear most affected now. Mr. Peton is well acquainted with the proper remedy and mode of applying it. Met Mr. D. Beyers here, at whose place we called yesterday. He assured me he had found the disease on his Vines, and intended using the proper remedy whenever he could procure sulphur and necessary apparatus. The fruit crop

—Peaches and Apricots, is almost an entire failure on Mr. Peton's farms.

The farm of Mr. Rowan adjoining, containing about 100,000 Vines, is likewise affected with the disease. Pontao, Green Grape, Steen Grape, and Haanepoot, we found all affected; the disease in a more or less developed state. No remedy applied as yet. Could not meet the proprietor. The crop of Pontao in this vineyard is the finest we have yet seen in the Drakenstein Valley.

The place of Mr. W. Ghislin. The disease has attacked the Vines on this farm, but not so generally and intensely as on several of the adjoining farms. Ten days ago a few Vines were dusted with pounded roll sulphur. Mr. Ghislin now sees “considerable improvement and less mildew in these Vines.” The Vines generally have been topped very short to admit a free current of air between the plants. Mr. Ghislin has a notion, common with many farmers yet, that the practice checks the progress of the disease. The crop on this farm is good; better, indeed, than the average of farms inspected. The situation of the vineyard is low, but has a free circulation of air; indeed, the wind blows with considerable violence here at times.

From Mr. Ghislin's to the Paarl, the disease exists more or less in every vineyard. The proprietors are all aware of the proper remedy, and express a determination to apply it whenever they procure the materials.

December 5th.—The object in returning to the Paarl was to attend a meeting of the district Agricultural Society, held this day, to take into consideration “The Vine Disease, and its Cure.” The real business done by the meeting is to appoint a Commission within the division, to collect facts connected with the disease now affecting the Vines, and to exhibit the way of applying the remedy, and to urge its immediate adoption in vineyards affected where the proprietor appeared doubtful or dilatory—in fact, just the object of our mission. A good deal of discussion of a conversational character took place relative to the origin of the disease, and of other cures besides flowers of sulphur; nothing definite, however, was arrived at on either point.

His Excellency the Governor, wishing to place the means of cure within the reach of the farmers of this important division, our instructions were to form a dépôt of sulphur, where it could be procured by the farmers at the price paid in Cape Town; the Government, through the Vine Disease Commission, paying the cost of carriage to the Paarl. This was stated to the meeting. The paternal care of the Government in thus offering to place the means of cure within reach of the farmers was properly acknowledged. Neither the meeting nor the Agricultural Society, however, appear desirous of incurring the responsibility of seeing the sulphur distributed and paid for. No other course remains, therefore, than to ask the Honorary Secretary of the parent Society to forward one instalment of the sulphur to the Paarl, and to confide it to some one who will take the trouble of distributing it, charging as much on the sulphur as will cover the expense of so doing. Rendered all the information to the meeting requested.

The place of Mr. J. C. Voight, Klein Drakenstein, opposite the Paarl, containing about 150,000 Vines, occupies an unvarying flat. There is a free exposure, however, to currents of air from all quarters. The drier parts of the vineyard are most affected with the mildew. The proprietor thinks the presence of water checks, if not cures the disease, and he is now irrigating a portion of the vineyard at the roots of the Vines. A great many Vines have been sulphured here in the way recommended, with evident success. Fumigation by burning roll sulphur under the plants, sprinkling with unsalted lime, and some other experiments have also been tried, but with no apparent result as yet. The proprietor exhibited several bunches of Grapes which had been sulphured some days, the berries on one side of which were much scorched by the sun. It was represented as the result of using sulphur; but this is manifestly an error—berries, and often whole bunches, are found scorched in the same way after “topping short” the Vines at this season. To apply the sulphur readily and economically, the Vines are topped shorter than would be done were the Vines unaffected with disease. The sulphur lying on the berries may augment, but certainly does not produce scorching. Mr. Voight appears to lead the way in this neighbourhood in trying to arrest the disease, and in making experiments. The crop of Grapes here is not an average one.

Leaving the Paarl to proceed by way of Klipmuts to Stellen-

bosch, we called at several farms on the route, in all of which, except one, the disease was found to exist, but not so general or so intense as at Drakenstein and the Paarl. The Grapes are not so forward here as at either of the above places.

At Mr. Van der Byl's place, a farm containing about 200,000 Vines, the disease is just developing itself on Green, Pontac, and Muscadel Grapes. At Mr. John Villiers' place and others where the disease exists, the appearances are similar. We found no place on this route where any remedy had been used or was in use. Recommended the most vigilant attention to detect the disease, and the immediate application of the known remedy.

Mr. P. Cloete's, about 120,000 Vines, nearly all Green Grape; no appearance of disease as yet. The Vines look vigorous and healthy, but the crop is very light indeed, and the berries small and late. This is the first place visited where the disease has not been met with. Examined what Mr. Cloete calls his best and worst plantation, but, happily, found everything in the most luxuriant health. The situation of this is low, and can only be ventilated by currents of wind from particular quarters. The soil is stiff, and contains much clay. No disease here last year.

Arrived at Stellenbosch. The several places visited in this neighbourhood were all found affected with the disease, the Steen Grape most intensely so. The remedy and its application appeared to be well understood. Some experiments were being made with lime, dry, and in a liquid state. At Jonkers Hoek the disease is prevalent. The proper remedy has been applied at some places. We did not visit Mr. Groenewald's, where we were informed the remedy was being applied with energy.

Mr. G. M. Villiers, near Stellenbosch, 100,000 Vines. Disease discovered only a few days. Dry lime has been used as a preventive.

Mr. J. P. G. Villiers, Schoonegezicht, 200,000 Vines. Average quantity of wine made, 250 leagues a-year. All kinds of Grapes grown. Disease pretty general, but most intense on the Steen Grape. Lime in a dry state has been extensively used here, the results are not apparent yet. Sulphur is expected hourly, and its application will begin at once. The high grounds and dry soils are most affected. Water, by irrigation, appears again as an agent in arresting, apparently, the disease. 4000 Vines of Steen, irrigated by a watercourse running through them are quite sound; Green Grape growing alongside, not irrigated, is attacked with disease. These irrigated Steens are the only ones in the vineyard, free, as yet, from disease. The crop of Grapes here is the best seen during the tour, and the general keeping and cultivation of the whole place is very good. The wines made on this farm are superior, and far above the average quality.

Mr. P. W. A. Haupt, 250,000 Vines. Disease general, but not virulent. Sulphuring going on energetically. Method of applying it as recommended by the Commission. Situation not so elevated generally as the preceding one, but more open. Soil similar. This is a fine vineyard, and in a good state of cultivation.

Mr. Russouw, Blaauwklip, Moddergat, 120,000 Vines. Lachrymæ Christi diseased. Steen severely—is about to apply the sulphur remedy. A part of the vineyard has been irrigated with such good effect, Mr. Russouw says, that as much as possible will be similarly treated. Is determined to apply the sulphur as soon as it can be procured.

Mr. Jan Roux, Weltevreden, Moddergat, 60,000 Vines, mostly Steen and Green Grape. This is one of the two places where, fortunately for the proprietors, no disease is to be found. Having examined the place carefully we found no symptoms of mildew whatever. The Vines are nearly all young: consequently the soil between the rows and plants is somewhat more exposed to the action of the sun's rays, and to atmospherical changes generally, than old Vines planted at the traditional "3 feet apart." The vineyard is surrounded by rising grounds on nearly all sides but one. The south-east winds blow through the vineyard with considerable violence. It is well ventilated, therefore. The soil is friable loam, subsoil stiff and clayey. The peculiarities of the place are open space between the plants, and consequent exposure of the soil to atmospherical influences; powerful winds blowing through the vineyard, and thorough ventilation.

Mr. J. Marais, Klipheuvcl, Moddergat, 115,000 Vines, mostly Steen and Green Grape. Disease general, but most intense on Steen Grape on the high ground, which were slightly affected last year. No remedy applied as yet. Urged the immediate use of sulphur and exhibited the apparatuses and how to use them.

The adjoining farms of Messrs. Louw, Malan, Hendrikse, and others are all affected with the disease in a more or less advanced state according to the earliness or lateness of crop. Lime in a dry state is being used in this neighbourhood for dusting the Vines, but we could not learn in any quarter that improvement had followed.

(To be continued.)

TREES LOOSE IN THE GROUND.

THERE is on the lawn belonging to a house in which I am interested a Red Cedar. It is a very ornamental tree but somewhat top-heavy, and has long had the branches on the south side propped. The evil arises from the roots being very near the surface, from which a great portion of them protrude, and great fear is entertained that the tree may be blown down. Can anything be done more than propping? The trunk is large, but has large branches commencing at a short distance from the ground, so as to form a very favourite tree for children to climb. I imagine the tree to be an old one, but only know it since 1829; but it was in full vigour then, and has fallen off since, the internal foliage having become thin. Would earthing over the protruding roots do any good? If any operation depending on arboricultural knowledge would be of any use, to whom could I apply?—H. M., *Herts*.

[The only thing you can do to support the tree is to prop it with three stout stakes placed triangular fashion, and cover the roots about 6 inches with some fine sandy loam. This may induce roots to be thrown out from the collar, which will in time fix the tree in the soil.]

MOWING MACHINES.

I HAVE just had pointed out to me in your valuable Journal of the 16th inst. a paragraph referring to lawn mowers, signed "R. F." I shall esteem it a favour if you will be kind enough to allow me to make a few remarks in reference to what your correspondent says respecting Green's machine; and in the first instance would observe that he gives me credit for introducing a lawn mower that is perfectly noiseless in working, which he says is a great luxury to the old wheel-and-racket system, and for this I thank him. I am sorry to hear that "R. F." has got into hot water by recommending my machines, owing to the contraction and expansion of the chains. I admit that the chains with which the machines were fitted last season proved a failure, in consequence of their stretching; but I am glad to be able to state, that I have totally remedied that evil by substituting a chain made entirely of steel, and made much stronger than the chains referred to by your correspondent, and which were only made of iron.

I infer from the remarks made by "R. F." that he is not very particularly acquainted with the machines I have supplied during the present season, as I find his remarks apply only to those of an older date. In conclusion, I would kindly ask "R. F." to examine my present improved machine, and I have no doubt that he will be ready to admit that the principle of self-sharpening, combined with its lightness of draught and general simplicity of construction, constitutes it as particularly adapted to be placed in the hands of the public, it having proved to be the most durable and efficient lawn-mower extant.—THOMAS GREEN.

AUSTRALIA AS A FRUIT-PRODUCING COUNTRY.—Perhaps there is no more favoured land upon earth than Victoria for producing in abundance and perfection a variety of the finest fruits, whether they are considered as a mere luxury, or as constituting one of the necessaries of life, adapted to the wants of man in a hot climate, or as likely to become one of the staple articles of commercial export at no distant period. Nearly all the fruits which can be cultivated in any of the temperate latitudes can be produced there in the briefest space of time, and with the most certain success. However sterile and unpromising the land may appear, the simple act of breaking up the earth, and of introducing drainage when needful, appears to act as magic on the newly-planted ground, converting the barren-looking wilderness into a fruitful garden. It is astonishing to observe how very rapidly and how vigorously the trees grow when placed in favourable situations, under good treatment. But horticulture

has to contend with the long parching droughts of the summer months, experienced particularly in low open districts, and occasionally with fierce burning winds. A hot wind, however, seldom continues more than two or three days at a time, and is almost certain to end in a good fall of rain, which soon rallies up the exhausted powers of vegetation. Fruit realised this season the following average prices:—Apples, 1d. to 8d. per lb.; Pears, 2d. to 1s.; Plums, 3d. to 6d.; Cherries, 6d. to 1s. and 1s. 6d.; Apricots, 6d. to 1s. per dozen. This may suffice to show that fruit is freely available for all classes, both for dessert and cookery purposes; and the community will no doubt soon be placed in a position to provide for the preservation of fruits on an extensive scale. The reasons why, comparatively speaking, little land is as yet devoted to this lucrative and pleasant branch of industry may be sought in the low return for the capital expended, so long as the price of labour and the outlay for garden land continued so unusually high. An eastern aspect, having a gentle declivity, is the most eligible for fruit gardens. It is invariably found that upon naturally sandy poor soils, fine fruitful orchards can be established under good management, when the choice loamy deep soils are not available. The deep alluvial cool soils along the river banks are very suitable for all kinds of stone fruit; and rich gravelly bottoms of the hill-sides for Apple, Pear, Quince, Mulberry &c. None of the small English fruits, such as Gooseberry, Currant, Raspberry, or Strawberry, succeed well, except in cooler valleys or mountainous elevations, where they always attain the highest perfection for quality and productiveness.—*Scottish Farmer.*

THE CROPS—THE POTATO DISEASE.

A FEW days back I had a great treat in going over some portion and seeing over the whole of a splendidly-cultivated tract of country of about 700 acres in extent, situated in a lovely part of Surrey. The farm, for it is only one, is enclosed in a ring fence, in shape an extended oval, running along the summits of two ranges of hills of some elevation, stretching away chiefly from east to west. The lower grounds are watered by a stream, towards which the lands slope in a beautiful succession of terraces, and producing a series of *coups d'œil*, each perfect, and the whole of which can be viewed at a glance from one elevated spot by the hospitable and spirited proprietor.

In a farm of this size the crops are seen in nearly every stage of cultivation and development. The cereals are all good; and one field of winter Wheat of great extent is truly magnificent—the same height, the same strength of straw and fulness of ear—it is a lovely sight. The Barley, I think I may say, is nearer to perfection than any to which my attention has been directed, and the Oats good, though, perhaps, short in the straw. The Beans, as elsewhere, a failure, though I am inclined to think not to the same extent as in other localities. The Peas a heavy crop, requiring weather to house them.

Of the root crops, the Turnips are all good. In one field, the earliest I have yet seen, they have nearly covered the ridges, and are butting most satisfactorily. Of the Mangolds, one field decidedly first-rate, taking into consideration the almost general complaints about this valuable root; and in others good.

I would here observe, that Wheat of last year's growth is being sold off this farm, which exceeds 65 lbs. weight to the bushel.

But how about the Potatoes? Truth compels me to say, that while the crop is good, that fell-destroyer, "the disease," has undoubtedly attacked them. I write this in sorrow, not as an alarmist. In one large plot, growing in maiden soil (the site of a hedgerow of great age, and recently stocked up) lying high and dry, and in soil which may be designated an excellent sandy hazel loam, with gravelly subsoil, conditions than which none can be better for the Potato, it is unmistakably present. The sorts are a Kidney, and the Regent; the former only partially attacked, the latter all but denuded of foliage, and I was informed that the Potato crops growing in the stiffer soils on the farm, as yet exhibited no signs of the disease; thus reversing the experience of former seasons.

I would observe that within the last few years the worthy and spirited proprietor has added over thirty acres of cultivated land to the estate, by the removal of old hedgerows and worthless timber.—LEIGHTON.

regret that we cannot furnish such a list. We can give one contribution towards it, however, for we see among the Cole MSS. about to be sold by Messrs. Puttick and Simpson, the following is one of the lots:—"ST. JAMES' PARK. Order for payment to Leonard Gurle, his Majesty's gardener, £200 for the keeping of his Majesty's garden in St. James's Park, July 26, 1682." So Leonard Gurle was gardener to Charles II.

CISSUS DISCOLOR.

THE *Cissus discolor* is a plant of easy culture, and will be found to grow well in equal parts of light turfy loam and peat, adding a little leaf soil, with sufficient coarse, gritty sand to keep the compost porous. Let it be well drained with large crocks, covering them over with rough, turfy peat. Drainage made with the crocks broken small, soon becomes choked up. It is worse than useless for any plant after it has been removed from a three-inch pot.



This plant requires a high temperature, and must therefore be placed in the hottest part of the stove or Orchid-house, and shading must be particularly attended to on bright days. This latter is essentially requisite in order to produce that intensity of colour which makes it so charming. Most plants require strong solar light to bring out their colours to perfection; but the one under consideration is an exception, which is readily accounted for by tracing the plant to its natural habitat, where the sun is scarcely able to dart his fiery rays through the dense mass of luxuriant vegetation by which it is surrounded, but whose burning heat, acting on the saturated moss-clad soil, causes a

ROYAL GARDENERS.—"A SUBSCRIBER" has asked us for "a list of the head-gardeners employed by our Kings," and we

thick vapour to exhale, which is highly congenial to vegetable life, but far otherwise to the botanical rambler, who may prolong his stay among these unhealthy shades.

The plant is admirably adapted for training up a pillar, or on the end walls, or divisions of the stove. If trained up the rafters the young shoots must be allowed to hang down, or the effect would be partially destroyed by the surface of the leaves turning to the roof, instead of facing the observer's eye. It is also equally suitable for pot culture, and in this case any trellis may be used that taste may suggest; probably one of upright

pillar-like form will be found to be as suitable for displaying its varied tints as any that may be devised.

As the autumn approaches, the supply of water must be gradually diminished, and the plant kept rather dry from November till February, allowing it only just sufficient water to keep the roots healthy. This partial rest will enable it to start into growth with renewed vigour in the following spring, when the former treatment may be resumed. It has not yet flowered, and is at present only in the Tooting Nursery.—H. BUCKLEY, in "Garden Companion."

PHALÆNOPSIS AMABILIS (THE INDIAN MOTH ORCHID).

AMONG all the many species of stove Orchids there are few that exceed in beauty and elegance the *Phalænopsis amabilis*, which is now met with in all good collections. This beautiful plant is a native of Manilla, whence it was first sent to this country by Mr. Hugh Cuming, in 1837.

The curious form of the flowers, the graceful way in which they hang down from below the leaves, their large size, and the brilliant whiteness of their broad, leathery petals, give this species a most striking and uncommon appearance.

Dr. Blume met with it on the wooded coast of Nusa Kambangan. Rumph, who first noticed it, speaks of its growing in Amboyna, on short thick trees, covered with moss, up which, he says, it turns like a rope, and from which it hangs down in entangled tufts. He mentions a variety whose petals are a deep rich purple on the outside.

The Dutch colonists, in the Malayan Archipelago, call this plant the *Vliegende Duive*; the Malays themselves *Angrec poeti besaar*, *Bombo terbang*, *Angrec colan*, and *Wanlecu*.

It belongs to that class of Orchidaceous plants which succeed best when fixed to pieces of wood, along with a little turf or moss, and suspended from the roof or pillars of the stove. It grows very well in this manner in the Orchidaceous-house at Tooting, which is kept saturated with moisture, and scarcely ever receives any air. The wood on which it is fixed should either be covered with rough bark, or be in a decaying state, to enable the roots to fix themselves to it; it may be a foot or 18 inches in height, and 4 inches or 5 inches in diameter.

It has not, like most plants of allied genera, an apparent ascending stem, for the leaves issue immediately from the same point as the roots. Its foliage is remarkably handsome, being short, broad, thick, by no means spreading, and always in a most healthy or luxuriant condition. The flowers are, nevertheless, its main attractions. They are borne on a half-erect, half-pendent spike, and are for the most part of the purest white, with an extremely singular labellum, the structure and markings of which are in the highest degree pleasing.

It flowers at least seven or eight months during each year, as, if the flower-stems are carefully severed just below where the lowest blossoms were produced, they will speedily emit branches, from which other flowers are ultimately protruded.

The name was given by Blume, and is derived from the Greek *Phalaina* a moth, and *opsis* resemblance, arising from the supposed resemblance of the flowers to a species of moth.



THE VINES IN POTS AT CHISWICK.

THOSE who are interested in the cultivation of Vines in pots should lose no time in making their way to the Gardens of the Royal Horticultural Society at Chiswick, where they will see such an example of pot-Vine culture, as, perhaps, they never saw before. In a long range of pits heated with hot water, may be seen sixty or seventy healthy Vines laden with fruit, and growing in ten-inch pots.

They were raised from eyes in heat at the end of February, 1860, singly, in small 60-pots; repotted from time to time when required, and finally at the beginning of June they were removed

into fruiting-pots, of 10 inches diameter; the soil consisted of light loam, with one-third rotten dung added, and well drained. The soil was frequently top-dressed with good rotten manure, and manure water liberally supplied.

On the 1st of March, 1861, the Vines were put into a common brick pit, heated by hot water, and trained to a wire trellis along the roof. The Vines on an average have borne six good-sized bunches each, and they have this season been regularly supplied with liquid manure, and frequently top-dressed.

Some of the earlier varieties were ripe by the 1st of July ; but the later are not yet ripe.

Among others, the following varieties are cultivated :—Black Hamburgh, Frankenthal, Dutch Hamburgh, Golden Hamburgh, Muscat Hamburgh, Black Prince, Tremham Black, Lady Downe's, Black St. Peter's, Muscat of Alexandria, Bowood Muscat, Chasselas Musqué, Royal Muscadine, Stillward's Sweetwater, Foster's White Seedling, Muscat St. Laurent, Muscat Ottonel, Muscat Citronelle, Early White Malvasia, and numerous other varieties less generally known.

We cannot but congratulate Mr. Eyles on his great success, which is all the more meritorious when it is considered what the extent and variety of his labours are.

OSCAR STRAWBERRY.

WHAT do the readers of THE JOURNAL OF HORTICULTURE think of this Strawberry? I am anxious for advice on this point; for on making inquiries respecting it, I find some recommend it very highly, while others condemn it as being utterly worthless. Of course, most people have their favourites, and "many men are of many minds;" but still it is surprising to me that there should be such diversity of opinion on this point. I should like to know the general opinion respecting it, and as this is the Strawberry-planting and potting season, an enlightenment on the subject might be of service to others as well as myself.

Is Carolina Superba a good one, and was it raised by the raiser of Wizard of the North, which variety I believe is generally discarded?—FRAGARIA.

[There can be no doubt about Oscar being a first-rate Strawberry. It has a firm, solid flesh, and a fine flavour. We have had no experience of it for forcing. Carolina Superba was raised by Mr. Kitley, of Bath, and is one of the finest Strawberries in cultivation.]

WORK FOR THE WEEK.

KITCHEN GARDEN.

PERSEVERE in getting out successions of Broccoli, Brussels Sprouts, Savoy, &c. *Cauliflowers*, the main crop for autumn use to be immediately planted out on a rich piece of ground. This vegetable, when planted out at this season, becomes very useful after the Peas are over. *Cucumbers*, if they are required through the winter, to be sown now, so as to have strong plants by the beginning of September. Attend carefully to those in frames, remove decayed leaves from the plants, and about twice a-week, in warm weather, give them a liberal supply of water. *Dwarf Kidney Beans* to be well soiled up to protect them from the winds, and all pods, when fit, to be kept constantly gathered. *Herb-beds*, where new ones are required they may be made, the ground to be previously manured and dug; slips of some sorts and rooted plants of others to be planted in them. *Lettuce*, thin and transplant a sufficient quantity for use; keep them watered during the continuance of dry weather. *Melons*, to obtain high flavour it is necessary to accustom them to the open sky whenever the weather will permit, especially during the approach of the ripening period. A gentle amount of warmth to be kept up in the linings. *Parsley*, let a sowing be made immediately, if it was not done at the beginning of the month. If any has been left for seed let it be gathered as it ripens, or the best of it will be lost. *Peas*, earth up and stick the advancing crops. *Radishes*, the black and white Spanish to be sown for winter use; also sow the common kinds for successional crops. *Spinach*, continue to keep up a succession: a larger space of ground may now be devoted to it, as it will not so soon run to seed.

FLOWER GARDEN.

The late-planted flower-beds to be looked over, and the plants pegged down or staked up, as their habits may require or taste direct. All decayed flower-stems and leaves to be removed; the flower-borders to be thoroughly cleaned, and annuals that have ceased to be gay to be pulled up to make room for some of the reserve stock. The seed-pods of *Pinks* to be gathered as soon as they are ripe, and to be dried in a shady place. *Tulips* may now have the outside skins removed. Very small offsets will be as well in the ground, and a bed of fine and suitable soil should be prepared for their reception. Let the *Carnations* be layered, and all *Dabbies* or other tall flowers to be well staked. The earlier

Roses done blooming to have their decayed blossoms removed. The budding of this fine family to be now expedited. Where the bark rises badly some manure water should be applied, which will cause the sap to rise more readily. Encourage the production of autumn bloom in the Perpetuals by watering with liquid manure and mulching the surface of the ground where practicable. Climbers on walls to be attended to as they advance in growth, keeping the young shoots neatly laid in, &c.

STOVE.

Watch closely for insects in this house, and follow former directions as to moisture and air. The plants which have done blooming to be cut boldly in, and to be started gently to make new growth. Attend closely to the winter-blooming plants, taking care to get such growth well ripened to produce bloom. Those Orchids suspended in baskets or on blocks of wood will require a liberal supply of water at this period. All blocks will need frequent but light syringings, and as much fire heat as will allow of a gentle circulation of air.

GREENHOUSE AND CONSERVATORY.

Shift on late *Fuchsias*, *Scarlet* and other *Geraniums*, and cut back the principal stock, putting in the cuttings for a succession stock of young healthy plants. Train and tie in neatly all creepers, and apply clear manure water to those now about mid-growth. A sufficient stock of *Chrysanthemums* may still be obtained by cuttings or by layers. The pot *Roses* to have all exhausted blossoms cut away, and those for winter blooming to be examined as to whether they need shifting. The *Teas* are admirably adapted for pot culture. Remove the faded flowers of *Aphelaxis* and *Helichrysums*, cutting the flower-stems close into the old wood; set them in a cool shady place when they begin to grow; any that require it to be repotted. When the flowers of *Kalosanthes* are getting shabby do not spare the knife on the blooming shoots, but cut them well in below the blooming branches of next year, and by removing two or three tiers of leaves at the top of each branch they will break a week or ten days sooner than they otherwise would do. Plants in flower should not be syringed, as it spoils their beauty.

PITS AND FRAMES.

Young stock to be exposed to the dews every fine night, and in dull weather they may be exposed throughout the day also. Sow *Mignonette* and a few showy annuals for decorating the plant-houses during the autumn and winter. W. KEANE.

DOINGS OF THE LAST WEEK.

PLANTED out more *Cauliflower*, *Coleworts*, and *Winter Greens* as ground could be got for them. Cleared away the remains of the *Cauliflower* that had been earthed up into ridges with *Celery* between. Find that the *Celery* does not grow so fast since the slight shade of the *Cauliflower* leaves were removed. To prove to ourselves and some doubters the advantage that *Celery* at an early period receives from a little shade, and thus so far humouring its natural character, we placed over a bed burdened thinly wattled with old deciduous branches, these hurdles being supported on pots; and the difference in height and strength is quite observable, and it would have been more had we had a more bright sunny summer. But for such means it is next to impossible to get large *Celery* early. As the long, cool nights of autumn come, it grows with a vigour which we cannot obtain in early summer. However careful at planting time to remove all appearance of sucker-shoots, these will want looking after several times before earthing-up, as they detract from the size and compactness of the main plant, and have to be cut away before the plant is sent to table. With this exception—watering when necessary, and tying-up each plant loosely as it gets large, and after a good watering just throwing a dust of dry soil over the bed to keep the watering in, we never do anything in the way of earthing-up early *Celery* until within a month of the time we want it for use. We make an exception in favour of a few heads wanted very early, or for those required merely for soup and stewing. By these means we rarely have a run head of early *Celery*. The reasons have been given once or twice, and will only be repeated if required.

Cleared also the remains of the second piece of *Cauliflower*, all early *Cauliflower* being extra fine this season, and got it dug ready for winter *Spinach*—a rather close cropping with two keen feeders in succession, but we could not help it. Gave manure water to succession *Cauliflowers* and the earlier *Savoy*, *Brussels*

Sprouts, and Greens to get them strong and into early use. Watered also with manure water late Peas—as Harrison's Perfection, Veitch's Perfection, Ne Plus Ultra, and others, having found that after all the showers the ground was getting dry about the roots, and if that dryness continued with heavy crops of flower and pods, we should expect *mildew* to come, and then farewell to fine-flavoured, healthy, continuous gatherings. If this watering should be much repeated, the surface of the soil, especially near the crops, should be nicely forked over to let the air in, and not so deep as to injure the roots. In such showery weather without such stirring, the surface becomes like a pan, and the rain is passed on past the main roots, or if the soil is moistened all atmospheric influence is next to excluded.

Sowed some Dwarf Kidney Beans in a turf pit, which will thus obtain protection late in autumn. Sowed also in pots in the same place, so that if October should be wet and cold the pots may be removed where additional heat can be given to them. The first sowing in the open air is just coming in, and, therefore, those planted out and which have given us plenty every day will soon be removed as a little spider is appearing on them. The second and third sowing out of doors are looking pretty well; but a leaf is appearing now and then to be diseased, just as if strong manure water had been poured on them, though we know they have had nothing of the kind. A few sunny days would remove all such blotched scalded appearance. If not thoroughly assured to the contrary, I should have thought that the man when watering Peas, &c., had dropped some of the strong water on the leaves of the young Beans. Last autumn some Dwarf Kidney Beans died off from a similar disease.

In using manure water two things ought ever to be kept in mind—never to use it too fresh or too strong even at the roots, and to make sure it is weak when any is placed on the foliage, designedly or not. We had a barrel from the farmyard lately, that we durst not have used safely even at the roots, until after it was reduced by giving three parts of clean water to one part from the barrel. Even at that strength it would have hurt all foliage unless washed off directly by a heavy shower. These few marks on the leaves of Dwarf Kidney Beans, and the curling and fading of the leaves of Cucumbers out of doors, are the chief signs of disease I have noticed among vegetables as yet this season.

The continued wet weather has made us fearful of the Potatoes, but as yet, I have seen little or nothing of disease. In raising for use, it will be a good plan to take up every alternate row, so that the one left will have more room and not be liable to be so wet. I fear that short-topped kinds, as Ashleaf, &c., will come off best if this drizzling, warm weather continues. In some cottage gardens I observe the tops are of a gigantic height, and these will be the most apt to suffer, when planted so close as they generally are. It is good policy to use such as early as serviceable, and fill the ground again with Winter Greens or late Turnips.

Pruned and regulated Tomatoes, and well watered Chilies and Capsicums when not exposed fully to the weather. A few of the latter are very useful to labouring men in wet weather. A small pinch when ground down, however taken, gives a tone to the stomach, and an increase to the circulation. Cayenne pepper thus made is sure to be genuine, even though not so nicely ground. Regulated and shortened Cucumbers and Vegetable Marrows out of doors. The latter want more sun to secure abundant cutting of young fruit.

Looked over Vines to remove any decaying berry in earliest bearing-house now. Removed most of the laterals from second house, and a few from the late house, so as gently to check more wood growth, but not to throw too much light at once on the bunches, or arrest too quickly root action. The Peach-house being now cleared of fruit, looked over it as to tying and thinning. Gave it a good syringing with lime-and-sulphur water, and placed some sulphur on the pipes, so that by putting on a fire in dull days and keeping the house close, a start may be given to any spider that may remain. Will give much less air now for a month, but will use what heat and light the sun will give to harden and ripen the wood. Used a similar wash for trees in cold-house, a slight trace of spider having shown itself in several places. There was soot also in the wash so used. Being rather a favourite one with us, we may as well explain how it is made. The clear soot water is made by placing half a bushel of soot and half as much lime into a hogshead of water, and stirring all well together with a little water at first with an old broom. This filled up will be clear with a yellowish tinge next day. This is often used alone for syringing, but in general

with as much clear water added to it. When we expect or see spiders we add lime-and-sulphur water to it. I will repeat how we make it. A pound of sulphur is placed in a kettle holding about five quarts, and just as much water added at first as will moisten it to paste. About 1½ lb. of fresh sifted lime is done in the same way, or a quart of the sulphur is taken and nearly three pints of the lime. From four to five quarts of water are now added, and the whole is boiled for ten minutes or so, stirring carefully all the time. This is allowed to settle and cool, and then is a very strong liquor indeed, which is best kept for use in a stone bottle. A drachm glass or half a quartern of this liquid will be strong enough to put in a pail of water holding from three and a half to four gallons. We have used this little this season, because we were bent on trying some other things, and because we could not lay hands on quicklime just when we wanted it. A few Plum trees were syringed this morning well for the fly, and I hardly perceive one left alive and comfortable. The liquid was the lime and soot water referred to, with about half a quartern or small wineglass full of the above liquid added to every potful of three and a half gallons. In extreme cases a little soft soap is added. It was also thrown on some Gooseberry bushes, and made the caterpillars wriggle and draw themselves up nicely.

I must own that these caterpillars have left their traces on the bushes everywhere here, and as we thought we had finished all traces of them by the 7th of the month, and had all hands employed in the pleasure-grounds until the 10th, I was much annoyed to find two or three rows with scarcely a leaf upon them, though when examined on the 7th I had not perceived the sign of a single caterpillar. I have never found the broods so successive and continuous as this season. We have gone carefully over bushes, and so far as we believed, by picking, shaking, and syringing, had not left one. I have gone over them the day after, and had not detected one; in a day or two more have found myriads of little things about one-third grown or less, and the work just to go over again. With such repeated encounters any acrid substance that will either kill or cause the caterpillar to drop on a cloth is apt to injure the flavour and the free swelling of the fruit. The above wash does as much harm to the vermin and as little injury to the fruit as any we have tried. With all our care our late Gooseberries will be inferior to what they used to be.

These caterpillars are extremely plentiful all round this neighbourhood; in many places scarcely a leaf is left. But I must blame myself to a great extent for having so much trouble with it here. We have hardly seen a vestige of it for many years, and that made us careless. Previously all the soil for 2 inches or 3 inches deep was carefully scraped from all round the Gooseberry bushes, and drawn into a ridge between them, which thus collected all the pupæ if there were any. This was either taken away and burned, and fresh-burned earth placed beneath the bushes, or it was trenched down deep in the centre between the bushes, and fresh earth from the centre placed round the stems with a little lime and soot thrown over all. In this latter case the pupæ were destroyed from being removed beyond atmospheric influence. Last season we put such faith in the frost that we neglected either of these precautions, which will entail double diligence next season, after all the care of picking, shaking, syringing, and dusting this summer, merely to prevent them getting the mastery.

We were expecting to be very gay in the flower garden this season. Even of Roases we have had more than we expected, and some things, as Calceolarias, have done magnificently, leaving nothing to desire. Scarlet Geraniums on the whole have been good; but it is easy to see that if this dripping weather and so little sun lasts much longer we will be apt to have leaves like Cabbages, and flowers few and far between. A few days' sun would save all that, especially if a few of the larger leaves are removed. All the stronger kinds of Scarlet Geraniums will rejoice in a fair amount of disleafing in such a season as this. There is nothing amiss yet; but sun or not sun for the next two or three weeks will be the turning point as to the continued grandeur of the flower garden for this year. If the present fashion of planting continues, and were we assured that seasons like the last were to be general, it would be worse policy to seek out handsome foliage for beds—different coloured stones or gravel, or even paint on a grand scale. Much might also be done by planting in pots to restrain growth; but then in dry seasons the labour in watering would be immense. We had Geraniums in pots last year in flower-beds that could be seen

ever so far off, so full of bloom were they. On a fine sunny season we should have expected those planted out to do best. Have had plenty of work tying and securing these windy days. —R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.

GREENHOUSE (X. L., Chelsea).—The house of which you enclose a plan will suit admirably for the purpose for which it is intended, and we have not a suggestion to offer by way of alteration or improvement. We would recommend the angle on the top of each side wall to be made to open inwards on hinges; and these will afford sufficient ventilation at the top, provided you have, as you intend, ample opening in front. It matters little what sort of cucumber you have. Most of the seedsmen who advertise in our columns have a choice sort which will suit you, and any of them, along with Vegetable Marrow, would do well in the house. But why grow Vegetable Marrow under glass? Have you no useless corner out of doors?

VINES DISEASED (F. G. T.).—Your Vines are attacked with red spider. Place pans of water containing flowers of sulphur on your flues or pipes, shut up the house close, and syringe the Vines frequently.

MAGNOLIA GRANDIFLORA (Rep. A. K. H.).—As you say the upper part of the plant is breaking only partially and will never make a handsome specimen, we would most assuredly counsel you to cut it down, and encourage the strong shoots coming up from the stock. With these you will be able to form the tree into any shape, or give it what direction you most prefer; and in all probability you will have a handsomer plant than you had before.

WATER LILIES (A Subscriber).—Water Lilies have not a deleterious effect on the water of a pond where cattle drink.

ALTERING FLUE PIT TO KIDDEAN SYSTEM (James Rollins).—Your flue is very much like too many we know, they are all too narrow unless they rose gradually along the front of the pits and across the end, then run up in a shaft at the first back corner, not go along the back wall at all; but when they do go along the back, and, like yours, are mostly on the level, they never draw. We never recommend new plans of heating to any one who is not a thorough master of all the old plans. That is our rule. Kiddean and geothermal heating are good subjects for experiments to such men as write in our pages; but there is, probably, not one in one hundred of our readers who would not burn their fingers and their plants long before they could learn how to do them as they should. For a pit like yours, and for keeping plants from frost, nothing is so cheap or more handy than six-inch glazed earthenware pipes, and a large fireplace. With them and a faggot of wood you could get up sufficient heat to meet a late-evening frost in fifteen minutes. After that with a roomy fireplace to hold a smouldering heap of sifted ashes, sifted coal and sawdust, with hardly any flame we have done the thing as well as with the best machinery, and nothing can be cheaper or more safe or less liable to get out of order. The only secret is a roomy furnace which would burn clay or any mortal thing.

FERN-HOUSE (H. B.).—The arrangement you are about to adopt for a fernery will answer admirably, and the large Lime tree will only contribute to the advantage of the plants. You will see the list you refer to in our last week's Number. *Pteris cretica variegata* will do well in such a house.

ONOTHERA MACROCARPA (M. F.).—This is best when it is propagated early in May, or when the young shoots of the season, or an old plant out of doors, are 3 inches long, more or less. Slip them with a heel from the old plant, and they will root almost anyhow, but under a hand-glass out of doors is the best way, because it is best for the young plants. But, of course, old plants can be forced and cuttings made and rooted in a Pine-stove, or in any other hothouse way. *Gazania splendens* roots just like a weed, and more easily than a *Veronica*. We never heard of such a thing as *Veronica gentioides* variegata.

CLIANthus MAGNIFICUS (M. F.).—Is it possible that you are right about this name? We have heard of the plant having been seen by some one in New Zealand, but that was all. If it is true to the name it will require exactly the same treatment as any of the New Zealand Veronicas, only not quite so much water in winter. If you do not know these Veronicas, just suppose any good Fuchsia to be an evergreen, and treat your plant as you would that Fuchsia. But send us specimens of it and of the *Veronica* you want to know about, put them in in fold of the finest oilskin in a letter, and we shall soon put you on your legs with both of them, and, perhaps, something extra to the bargain; but tell us all you know of both to save bother.

TRANSMITTING FLOWERS BY POST.—As my method of sending cuttings by post appears to have met with your approval, it may, perhaps, be useful to state, that the substance I employ is gutta percha tissue, a thinner and less expensive article than oilskin. —F. M. E.

TRAINING RASPBERRIES (A Fragarian).—If planted closely in rows train them fan-form against an espalier rail, formed of posts and galvanised iron wire. Only two wires are needed, one at 14 foot from the surface, and the other at 4 feet. If the stools are wide apart, the best mode of training is to tie the canes of each stool round a small hoop about 1 foot in diameter, and the hoop to be fastened firmly to a stake fixed in the ground. The hoop to be about 1 foot from the top of the canes. No red Raspberry is better than the Pastoff.

POSSIBLE MANURES (T. H. J.).—Both superphosphate of lime and guano will be useful to your Strawberries. Apply the superphosphate now, and the guano as soon as the flower-buds appear next spring. August and early in September is the time for striking the side-shoots of Pansies. Caladiums require a rich loamy soil, good drainage, and plenty of water. To equalise the production of Grapes on all parts of your Vine, bend down

the rods after pruning them in autumn, and keep them in a horizontal position until they have broken in the spring.

NAMES OF PLANTS (W. W. C.).—The plant called Chinese Weed, of which you enclose the scraps, is *Calytegia pubescens*. (*Glassereri*).—Your plant is not a Campanula, but *Gentiana pneumonanthe*. (W. W. Ticehurst).—Your plant is some kind of *Teucrium* or *Nepeta*, but it and the moss got so dry that we could not examine it. Moss is one of the worst things in the world to send flowers in. Cotton wadding is the next worst thing, blotting-paper the third worst thing, and we forget the fourth and fifth. But a very shallow tin case and a fold of the finest oilskin, will carry the finest leaf or the most tender flower in England, to any part of Scotland or Ireland as fresh as larks, and just at the same expense as this broomstick and mop-head style of common packing. The largest Strawberry worth growing is Admiral Dumas. (A.).—No. 1, we cannot be certain about in the absence of flowers, as there is another plant just like it in all other respects. If the flowers are very small and white the name is right; 2, is *Pellagium holosericeum*, figured in Sweet's "Geraniaceae," plate 75, and is the same as Lindley's *Campylia holosericea*, and tricolor is the next section of the genus, and the only one in that section. Tricolor is an intermediate link between Lindley's *Campylia* and De Candolle's *Myrrhidium*. *Campylia holosericea* is the proper name of your plant. (W. T. W.).—Your plant is *Symphitum asperum*. (Taffy).—No. 1, *Stachys arvensis*; 2, a white variety of the same; 3, *Medicago lupulina*; 4, *Filago germanica*. (S. Devon).—Your Ferns are—No. 1, *Asplenium trichomanes*; 2, *Blechnum boreale*; 3, *Polypodium vulgare*.

FLOWER SHOWS FOR 1861.

AUGUST 9th. BELFAST ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Carruthers.
AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.
AUGUST 20th. SHEPTON MALLET. Hon. Sec., Mr. J. Braheer, Shepton Mallet.
AUGUST 28th. DEWSBURY. Sec., Edward Forth.
SEPTEMBER 2nd. HECKMONSWIKE. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmonswike.
SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.
SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) Sec., *Garden Superintendent*, G. Eyles.
SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.
NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) Sec., *Garden Superintendent*, G. Eyles.
NOVEMBER 12th and 13th. STONE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.
NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.
N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY, &c., SHOWS.

AUGUST 1st. ROSSENDALE. Sec., Mr. William Platt, Waterfoot, near Manchester.
AUGUST 1st. GOOLE. Hon. Secs., Mr. R. Blackburn, and Mr. C. Browning.
AUGUST 3rd, 5th, and 6th. SHEFFIELD. Sec., Mr. Wm. Henry Dawson, Sheffield. Entries close July 25th.
AUGUST 3rd. AYRSHIRE APIARIAN SOCIETY. Sec., Mr. John Laughland.
AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. Sec., Mr. W. Houghton. Entries close July 27th.
SEPTEMBER 3rd. POCKLINGTON (Yorkshire.) Sec., Mr. Thomas Grant. Entries close August 26th.
SEPTEMBER 5th. CHESTER. Hon. Sec., Mr. George Chivas, Chester. Entries close August 20th.
SEPTEMBER 11th and 12th. MANCHESTER and LIVERPOOL. Sec., Mr. T. B. Ryder, 2, Elliott Street, Clayton Square, Liverpool. Hon. Local Sec., Mr. S. H. Hyde. Entries close August 14th.
SEPTEMBER 24th. BRIDGNORTH. Sec., Mr. R. Taylor, Bridgnorth.
SEPTEMBER 26th. MIDDLTON. Sec., Mr. Thomas Mills.
OCTOBER 8th, 9th, and 10th. WORCESTER. Sec., Mr. J. Holland, Chestnut Walk. Entries close September 20th.
OCTOBER 9th. CALNE. Secs., Messrs. F. Baily and A. Heath. Entries close September 17th.
NOVEMBER 22nd, 28th, and 29th. DABINGTON. Sec., Mr. J. Hodgson. Entries close November 11th.
DECEMBER 2nd, 3rd, 4th, and 5th. BRIMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.
DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., Mr. W. Houghton.
N.B.—Secretaries will oblige us by sending early copies of their lists.

EFFECT OF SEASONS ON POULTRY.

WE begin to fear we are hard to please in the weather. For three years we had no rain, we thought of Coleridge's "Ancient Mariner," "the very boards did shrink," we lamented the parched state of the surface of the earth, the absence of animal life, and the consequent lack of growth in our chickens. Last year we mourned over the continual rain; there was no dust. The chickens crawled about with dragged tails and wings; every little hollow became a pond, and they died. The last three weeks have reminded us of our past troubles; and, as we think prevention better than cure, we advise our friends to see that their fowls are well provided with dust-baths. Little trouble is necessary. In any sheltered place throw down some dust, and the fowls will be there directly.

Those who are accustomed to watch the habits of birds in a state of nature know the importance of it. During a wet season Partridges and Pheasants seek beetling banks, hollows in the roots of trees, and other places that are sheltered from wet. Here you will find them always once in the day, and if they are gone the prints and feathers they leave behind testify they have had their daily indulgence.

CRYSTAL PALACE EXHIBITION.

Our first note should be to remind readers that the entries for the Crystal Palace close this week. We are glad to be able to say there is the promise of an unusually good show, especially in some classes; while there will be, in all probability, a greater display of varieties of Pheasants, water fowls, and rare birds than have been seen before at an exhibition. In these long summer days the gardens, music, courts, pictures, and poultry form irresistible attractions, and present the rare fact, that however numerous the members, or however varied the tastes of a family, they may here indulge themselves.

Every one knows how difficult it is for seven people to go to the same place, and find not only amusement but pleasure. It may be accomplished here. One loves the crowing of cocks; another the orchestra so ably conducted by Mr. Manns; one will spend his time wandering in the courts or the Alhambra; a fourth will be lost in the contemplation of the antediluvian animals; a fifth (more shame to him) may be waiting to see Blondin; the sixth will be studying the arrangements of the flowers; and the seventh, Paterfamilias, will be satisfied in seeing the others happy, and now and then calculating "the tottal of the whole" of the day's entertainment. All these varied enjoyments will be open to the public on the 26th, 27th, 28th, and 29th of August.

The Crystal Palace should be among poultry shows what Ascot was formerly among races—that meeting especially patronised and frequented by the ladies.

CALNE POULTRY SHOW.

We observe that through the efforts of some industrious persons a Poultry Show is to be held at Calne on the 9th of October, which promises to be a very attractive one, judging from the patronage under which it is to be inaugurated. Calne is six miles from a railway station; but the Association have arranged that the expense of conveying the birds to and from Chippenham Station will be defrayed by the Committee; and the Great Western Railway Company have kindly consented to convey all unsold birds free on the return journey. Parchment labels will be sent for the hampers. The Honorary Secretaries are Meere, Alfred Heath and F. Baily.

THE FLOORS OF POULTRY-HOUSES.

We receive many complaints from amateurs of the difficulty of cleaning the floors of poultry-houses. One complains the dirt cakes on the floor; another that he has put on gravel till he is tired of doing so, as his man sweeps it all out every morning; a third writes nervously about the accommodation for his chickens now they are growing older and larger. He fears disease from their roosting so closely, and some one has told him if they roost out of doors they will get rousy.

We can easily answer the two first. The flooring of a poultry-house should be of loose gravel, and quite loose to the depth of an inch or two—nothing can then adhere to it; and we answer the second by saying that it is neither necessary nor right to sweep the floor of a poultry-house. A long birch or heath broom should be drawn lightly over the surface. It will remove everything that offends, and the loss of gravel will be only the particles that adhere together. We renew the surface of our floors only twice in the year, although they are swept every morning in the way we have described.

We advise our friend the clergyman, whose fowls frighten him by their rapid growth, while the fowl-house remains the same, to allow them to choose their own dormitories, and he will find they will select laurels and fir trees, sheds and lean-to's, cart-houses and barns. Let them do so, they will grow better, and be the hardier for it. We have now above a hundred choice chickens at one place, and they roost as they will. If the fox leaves us

alone they will do so throughout the winter. We have often been amused to see Spanish that are called so delicate sitting on a fir tree in the midst of a deluge of rain. They appear to contract themselves to half their natural size, and thus to press their plumage together till it presents as it were only one feather: They droop from the neck to the tail, the head is under the wing, and thus any amount of rain is shot off without possible injury to the bird. There is no place where fowls cannot find a roost, and if allowed to do so it is very seldom they will choose an unwholesome one. There is no doubt that the more fowls are scattered about the healthier they are.

PROFITABLE POULTRY KEEPING.

ABSENCE from home has prevented my receiving my Journal as usual, but though late in the field, I trust you will allow me space to say a few words upon "LEIGHTON'S" communication of the 9th inst. The explanations it contains (if explanations they can be called) do not clear up in the smallest degree the heaviest clouds that envelope his balance-sheet. He published it again more in detail, but otherwise unaltered, still showing a "nett profit of 90 per cent.," and he furnishes a further account which he gives "in its entirety" proving that "poultry-keeping," if combined with market-gardening, will produce a nett profit of over 110 per cent. I will not now, however, touch on this, the subject under discussion being whether a sum of £45 7s. can be made yearly by the sale of eggs and chickens, the produce of 100 hens, and whether this return is to be calculated upon for every 100 hens kept *ad infinitum*.

Before, however, entering into details, I must call "LEIGHTON'S" attention to what he has apparently lost sight of. In the article that appeared in the *Poultry Chronicle* for April 23rd he propounded certain theories (I call them "theories," because I do not believe they are the results of practical experience), I disputed the conclusions arrived at from those theories, and while labouring to prove that "LEIGHTON" was too sanguine in expecting to realise 90 per cent. on poultry keeping, I made no counter-statements myself, but admitted all he put forth for the sake of argument.

I make these remarks because I find that "LEIGHTON"—forgetting, no doubt, what he has previously written—grumbles when I quote his own words, and rather smiles at any one being foolish enough to "suppose" what he himself distinctly affirmed.

Referring to my 2nd, 3rd, and 5th objections, which he takes together, he says, "No one supposes that each hen lays exactly 132 eggs, that 120 are sold, that she sits on the remaining twelve, and rears exactly seven chickens out of the twelve that may be hatched." I certainly did not suppose this, for my information was so clear on the subject. In the Number in question for 23rd April, page 70, "LEIGHTON" writes, "Thus, a hen will lay on an average 120 eggs, besides hatching a brood, of which she will rear, on an average, seven chickens," which I understand to mean, that 100 hens will rear 700 chickens, and lay 12,000 eggs during the twelvemonth. "LEIGHTON" now increases the average number of eggs to 132 per hen, and laughs at the idea of only rearing seven chickens out of the twelve that may be hatched. Very likely he will smile at my new-fashioned plan of placing always twelve eggs under a hen, and wonder what could have put such an idea into my head. It will be now seen that "LEIGHTON" admits the hatching and ultimate rearing of many more than the 700 chickens that are sold. Here arises another difficulty on the article "Food," and I must be allowed to quote a few lines from my letter in the *Poultry Chronicle* of May 7th, page 107. I there said "'LEIGHTON' reckons on sending 700 chickens to market, and he says, 'the expense of rearing chickens up to the age of ten or twelve weeks did not much exceed 1d. per head per week.' Now, of course, a great many more than 700 would be hatched in the first instance, living some of them many weeks, and, therefore, costing many a penny; but giving 'LEIGHTON' the benefit of every doubt, we will discard from our minds all but the 700 chickens, which at ten weeks old are sent to market. How much have they cost according to 'LEIGHTON'S' own statement? Why, reckoning them at 1d. per head per week, £29 3s. 4d. ! within a few shillings of the amount charged for food. This is, be it remembered, at 1d. per head; but we are told that although not much, still that the expense *did* exceed the weekly 1d.: the extra shillings are, no doubt, therefore, this trifling excess."

I now ask "LEIGHTON" therefore, upon what the chickens,

hatched over and above the 700 mentioned, subsisted. One thing is quite certain, that if "LEIGHTON'S" statement is true that the 700 chickens cost a trifle over 1d. per head per week to rear up to ten weeks, that these unfortunate supernumeraries could have had nothing at all to eat. If, on the other hand, the 700 chickens did not devour the whole of the amount charged for food—viz., £31 16s., why ever does "LEIGHTON" say that they cost a trifle over 1d. per head per week?

To turn now to my first objection; I consider it unanswered. No charge, no reasonable charge, has been made for the purchase of the original stock.

"LEIGHTON" tells us, "The cost was—birds, £13 7s. 6d.; expenses, 8s.; total, £13 15s. 6d.; average price, 2s. 11½d. (nearly) a-head. At 5 per cent. on outlay the item interest will stand 14s. 9½d."

He stated he had 100 hens. Well! here we unfortunately fall out again. I do not make the interest on outlay—that is, on £13 15s. 6d., at 5 per cent., come to 14s. 9½d. Neither do I make 100 birds at 2s. 11½d. each, £13 7s. 6d. Even knocking off the odd halfpenny I make it more money.

This I mention principally to show that "LEIGHTON" is capable of making mistakes in his book-keeping and calculations, the difference as far as amount goes being unworthy of mention. Then he says—"The roosters were two and three years old." There were, no doubt, twelve or fourteen, perhaps more. What did they cost? and where does that sum appear? They were not purchased out of the £13 7s. 6d., for that, as I remarked before, was not even sufficient to buy the hens at the price "LEIGHTON" himself said they cost. And now I must say a few words on the subject of interest, a topic on which "LEIGHTON" is evidently at sea, and I fear as a financier he will never make his fortune. A capitalist laying out money in building expects nothing less than 7 per cent., because he knows that although the erection whatever it may be will last a great length of time (a couple of centuries perhaps), still that his security will ultimately decay and fall to pieces.

Poultry are naturally short-lived, and, therefore, to talk of 5 per cent. upon such a security is most feeble.

Let me put a case by way of illustration. Suppose "LEIGHTON" to have invested £1000 in a mine, sufficient ore is raised for (say six years) to pay the shareholders 5 per cent. It is then discovered that all the ore is exhausted, that nothing more is to be got out of the mine, and the scheme is abandoned. What would be "LEIGHTON'S" position? Would he consider that having received interest for six years at 5 per cent. (or in other words £300) a sufficient return for having parted for ever with his £1000? Would he not feel like the man who had lost 1s. 6d. and found 1s.? But suppose instead of 5 per cent. the ore raised during the six years had been sufficient to pay 25 per cent., how would "LEIGHTON" have stood then? Why he would have received in the shape of interest £1500, and would be no doubt willing to lose £1000 every six years on the same terms. This is a parallel case to investing money in poultry. The security ceases to be remunerative after three years and vanishes, disappears, and dies a natural death after—say three more.

I ask "LEIGHTON" what would his stock of poultry be worth (if in existence) six years after he purchased, the hens being at that time one and two and the roosters two and three years old? I still consider "LEIGHTON" lucky in obtaining a penny for every egg (on an average), having 12,000 to dispose of during the year.

After he has parted with them, two profits have to be added—the dealer who calls, and the buttermilk who subsequently retails them to the public.

I still repeat, "That no charge is made for the sustenance of the original stock." "LEIGHTON" having previously declared that the average yearly return to be depended on from each hen was 18s. 9d., now states that "the actual average return was within a fraction too small to bring forward, 22s. 1d. per head per year." ("Why did he not say so at first?") "Thus leaving an ample margin for replacing vacancies in breeding-stock, for eggs for sitting (for I gave none to any but very early or very late hatches), and for food for original birds."

Does "LEIGHTON" mean to say that he put no eggs under hens "except those that sat very early and very late," or that he gave no eggs to the young chickens except early and late broods? That the difference (if it existed at all) between 18s. 9d. and 22s. 1d. is sufficient for all the contingencies mentioned I deny most emphatically, and I feel confident of the

support of all practical men. To underfeed stock of any kind it is well known is "bad farming," and never answers. In rick-yards during harvest time, and whilst threshing is going on, poultry certainly require little or no feeding; but those are exceptional cases, and "LEIGHTON" does not possess such advantages. If fowls are not properly fed they stray in search of food, and, in consequence, lay away from home, and when the run is but of two acres the eggs are in all probability lost. It is but penny wise and pound foolish, to stint your birds and lose their eggs; far better feed well and keep them near home. Hens do occasionally steal a nest and return with a fine brood, but they quite as often return with a very small one, and for my own part I would rather have a hen hatch ten than sixteen chickens. It is unsatisfactory to feed chickens and see them die off one by one owing to the mother being unable to brood them as they grow larger, the hen unfortunately remaining the same size. Besides, a hen although she steals a nest generally comes home some time during the day to pick up what she can; but, perhaps, as "LEIGHTON" never feeds his birds they know it is no use returning to dine with Duke Humphry.

"LEIGHTON" says, "Eggs for sitting were charged at half the then selling price." Why was this? If "LEIGHTON" could obtain, say 1d. for an egg, and instead of selling it he put it under a hen, he certainly should consider it cost him 1d.

I hold that it is quite impossible for poultry to do well if badly fed; that it is absurd to suppose that a hen will lay on an average 132 eggs at the least, and hatch and rear more than seven chickens each year, unless bountifully supplied with good things, and that is of course doubly necessary when there is no rick-yard but merely two acres of grass run.

I still consider "LEIGHTON'S" balance-sheet most incomplete, and that he is even, according to his own showing, far too sanguine in his conclusions. He will observe that I have all along judged him out of his own mouth. I do not deny his premises—I forbore saying whether 13,200 is a large number of eggs to be laid by fowls scarcely fed at all. I do not assert that these same skinny fowls (and skinny they must be) are unlikely to rear large broods: neither do I call in question the prices obtained; I merely ask him to furnish a complete and proper balance-sheet showing the truth of his statements, and if he can really prove that a nett profit of 90 per cent. is to be realised yearly from the sale of chickens and eggs the produce of 100 hens (I can at the same time explain satisfactorily how he fed his original stock whilst they were doing such good service), saying what he considers a reasonable charge for the maintenance of a full-grown bird (chickens up to ten weeks old costing a trifle over 1d.) he will indeed prove himself "the right man in the right place."—E. C. C.

COCKS REARING CHICKENS.

My attention was directed last evening by an old schoolfellow to the contribution of "SENEX GALLUS," in your Number issued on July the 2nd, 1861, but which I happened not to have previously perused, from being at the seacoast at the time it reached Sparkbrook.

Your replies to the queries of your correspondent, "SENEX GALLUS," find a ready echo, in every respect, from my own experience, with the exception of the one referring to the cock which voluntarily took upon itself the office of maternal foster-parent to a brood of chickens. Oh! how time flies. It is now more than thirty years since, though it looks but as yesterday, and I was then a no less ardent fancier of poultry than at the present moment, that an individual who dealt in all kinds of oddities in the live-stock-way, from leopards, monkeys, eagles, badgers, down to fowls, rabbits, pigeons, and guinea pigs, well known to almost every youth throughout the town, was sitting outside his window in "the Bear Yard," Birmingham, awaiting his multitudinous customers to buy, sell, or exchange.

To all readers resident within miles of the spot named, and whose years permit the retrospect, it will be at once perceived I refer to a party named Renben Simmons, or as he was more generally known, by the soubriquet of "Old Reuben." His trade extended for some thirty or forty miles round, but his tenancy was an humble one, for which he paid about £14 annually. It consisted of an old house and the sole occupation of an ill-conditioned yard (leading through from Bull Street to New Street), but which at that time was but little used, except by the customers of Simmons himself, as dogs of all kinds chained

to the walls, and occasionally even monkeys, a bear, or an eagle similarly constrained, prevented the more timid from venturing on the thoroughfare. Under the present town authorities his occupation would, no doubt, at once be voted a nuisance; and strange to tell, this small yard now densely covered with first-class business premises, and dignified by the name of Union Passage, produces to its fortunate proprietor at least £1200 a-year. But I "have (like yourself) wandered a long way in gossiping," still I feel certain numbers of your readers will peruse this digression with interest.

In the before-named yard an old-fashioned, immensely booted, speckled Bantam hen, which had oft-times raised a feeling of covetousness in my mind, but which was "not for sale," tended seven of her chickens about a week old. In ill-judged desire for their protection she flew at a large bull dog of her owner's, and before any help was at hand the dog had torn her piecemeal. The cock, a bird of the same (now all but extinct) breed, at once took to the chickens temporarily, leaving all other of his female associates, and exercising every hen-like solicitude for their welfare, clucking or brooding them continually. At nighttime his assiduity was remarkable, and his pugnacity impetuous towards any one who endeavoured to deprive him of his charge. After these chickens were fully grown, a still more remarkable peculiarity of this individual bird was, that although running freely with hens, he would at any time desert time *in toto*, if young chickens were given him, and he would rear them as tenderly as those first mentioned, whatever their breed; though youngsters of any growth—say, three weeks old, he as positively disregarded, nor did his aptitude for hen's duties develop itself until the fatal accident to his mate.

As to hybrids (the cross between Pheasants and fowls), I have both purchased and bred many, as I confess for years I had a weakness for keeping these beautifully-plumaged and singular anomaly of the feathered tribes. They were with me troublesome customers, always fighting, and rendering themselves in every possible way disagreeable and injurious to the well-doing of their poultry companions. But hybrids may differ in their appetites, although you state "the apparent male of this breed is never so happy as when sitting on eggs; and we have observed it a hundred times, and have seen the bird watch the hen off the nest, and then settle down on the egg with all the delight in the world." My "mules" were not by any means in even a single instance so amiably inclined to domesticity. They, if possible, it is true, invariably watched the hen off the nest after laying; but in lieu of the attempted incubation, they instantly broke the eggshell intentionally, and as quickly in illustration of the words of the old song—

"They made a great gulp, and they swallow'd it."

My only object in writing my individual experiences is, lest any novice in poultry matters might to his after-annoyance perplex himself with the morbid inclinations of hybrids, as in years past I have done.—EDWARD HEWITT, *Sparkbrook, Birmingham*.

APIARIAN NOTES.—No. XII.

ARTIFICIAL SWARMS.—I have been very successful in this mode of increasing my stocks this season. The plan I have adopted is pretty much that recommended and preferred by Langstroth, the clever American bee-master and author. To go to the very commencement of the proceedings, I first removed a suitable brood-comb from a hive with all the bees then about it, satisfying myself that the queen was not on the comb; this was placed in a small box capable of holding four combs only, and carried off to another apiary; or, at another time, the bees were all brushed off the brood-comb into their own hive, the small box with the comb was put on the stand of a second strong hive, which was removed, when many of the bees were out, to another part of the garden. This latter plan ensures a sufficient number of bees, without any risk from fighting. Young queens are quickly raised, and this forms what is called by Langstroth a nucleus. So soon as a few royal cells are sealed over, some of them may be cut out carefully and secured in combs, for the purpose of making more nuclei; these must be inspected from time to time, and notes made of the dates when the young queens come out. When one commences to lay eggs, it will be time to see about the artificial swarm. On a fine day invert a strong stock, which we will call A, and drive every bee into an empty hive; set this on the stand of the old stock. Having

captured the queen from the nucleus, either at once set her free with a few of her subjects among the combs of the old hive, or confine her for twenty-four hours in a small queen-box, made of perforated zinc, fastened in some way among the combs. A second strong stock, B, must now be removed from its place, and the hive from which the bees have been expelled, with its combs full of brood in every stage, and the young fertile queen is put in its stead. The bees that come home enter this hive, the brood hatches out, and, in a fortnight's time, this will be almost as populous as before the operation. The swarm C is pretty sure of doing well, having a great number of bees, with a fertile queen in almost every respect the same as a natural swarm. In a fortnight after the stock A was driven, proceed the same with respect to B, giving a young queen from another nucleus, and placing B on the stand of another hive, D, and so on, as much as you please. When the queens are removed from the nuclei, as they have laid some eggs, other queens will be raised; and it may often be found useful to have a supply of such at hand, even if no more artificial swarms are needed.

Out of an apiary which has reached to the number of nineteen stocks, I have this season had but four natural swarms; and those, being two firsts and seconds from two stocks, were united so as to make two only of the number of stocks. All my other swarms have been artificially formed; and I may say with very satisfactory results. It has frequently been but the work of a few minutes to drive a strong hive, so as to force nearly every bee into the empty one. A small box being at hand (containing a queen with a few bees) one side of which is made to slide easily, is secured among the combs. A strong hive is removed to a new stand, the driven hive taking its place. Being full of brood in every stage, enough will be hatched out in the course of a few days to make a pretty populous colony; but it is necessary that a good supply of adult bees be at once obtained, for the purpose of covering and rearing the brood in the less advanced state. This is best effected in the manner I have described. The advantages of this system of increasing stocks are, I think, very great, particularly to those apirians situated as I am. Being confined to business and my house in town during the day, and having my bees chiefly in the country in three apiaries many miles apart, I am enabled to choose my own time; and in the morning or afternoon, generally about nine or four o'clock, to force the swarms required from my strong hives, which give me no further anxiety or trouble on the score of swarming, requiring no watching or other attention during the daytime. Langstroth gives many plans for the formation of artificial swarms, but this, which I have endeavoured to describe, appears to me the best and easiest.

LANGSTROTH'S FRAME-HIVES.—Having adopted this plan somewhat extensively, I cannot let this opportunity pass by without signifying my approval of it. Although late in May before being fully resolved to adopt these boxes, I have now seven of them well-established, either transferred from common straw hives, or by artificial swarms. The facilities which are afforded for the scientific management of bees—viz., the ease with which the frames holding the combs can be lifted out and examined—the ease and certainty with which artificial swarms may be made—the advantage of being able so readily to give to a weak stock a full brood-comb from a stronger neighbour—the fact that the bee-master can almost compel his queens to an amount of breeding which would not be possible in the ordinary domiciles—these and other desiderata combine to render this system of bee-keeping almost as near perfection as possible. These hives differ from other bar-hives chiefly in having loose frames to contain the combs, instead of simple bars. There is a space of about three-eighths of an inch at top, bottom, and sides, which allows the bees rapid access to every part, and facilitates the removal of frames.

THE WOODBURY COMB-BAR.—I can fully endorse the good opinion which the inventor entertains of this comb-bar. I have adopted the principle in my Langstroth-boxes, and on plain bars of my ordinary hives; also in one instance where the bees intended for an observatory-hive were first placed in a box with bars 17 inches in length. The combs were worked beautifully straight, and were shifted into the narrow space between the two glass sides of the unicomb-hive, without the slightest difficulty. It would not have been the case if the common bars had been used. Any bars can be easily altered, so as to form these improved comb-bars. A slip of wood one-eighth of an inch square is tacked to the centre of the under side of the bar, the lower angular edges of which are rounded off. Mr. Wood-

bury runs a thin coating of melted wax on this little bead or ridge; but I find that a small piece of clean beeswax rubbed on the roughened surface, answers equally well.

UNITING OF SWARMS.—It is difficult to say why this should be found to answer so well at times, and why it should occasionally be attended with sad loss of life. This season I have united several stocks and swarms, all successfully; and have, within a very few days, effected a union between the bees in two of Langstroth's boxes, by separating the frames of one, and shifting into the vacant spaces the combs from the other with the bees that were on them, having first removed one of the queens, and then knocking out the remainder of the bees among the combs. There was no fighting. The operation was performed at ten o'clock in the morning. Again, early in the spring, I had two weak stocks—one a common straw-hive with a queen but few bees; the other a Stewarton-hive, with bees but no queen. The combs in the straw hive being old and black, I cut the hive in two about half way down through combs and all; and, having removed the lower of the two Stewarton-boxes, the half straw hive was "superposed" on the octagon-box. The bees, united without much fighting, soon increased in strength, and have given me two fine swarms. In some instances, where I joined bees last season, there was no fighting; but in others there were more bees slain or lost than were given to the colony, thus entirely defeating the object in view.

SWARMING SEASON OF 1861.—As a general rule, I do not think hives have swarmed so profusely in our district as in many other parts of the kingdom. What some of my own and Mr. Woodbury's strongest hives might have done in that way, had they been left to themselves, I cannot say. During the early part of the summer, the honey season was unusually good; but for some weeks little has been done, owing to the very unsettled weather which has prevailed. From one hive on the 3rd of July I took a super with 45 lbs. nett weight of sealed honey; a little brood and unsealed honey making the weight at 50 lbs. without the box. From another hive, a beautiful super of about 23 lbs., and a swarm. From a third, a fine super of about 25 lbs. will be taken. This hive has thrown off two fine swarms, and seems full of bees at present. Other hives have good supers yet to be taken off; but on the whole I do not think this season, at least in our locality, can compare with that of 1859.—S. BEVAN FOX, *Exeter*.

THE BEE PARASITE (*BRADLA CÆCA*).

On the 17th of June I found a little brown insect clinging to the thorax of a Ligurian drone. As this was the first specimen of the bee parasite which has come under my notice, I forwarded both drone and parasite to Mr. F. Smith, at the British Museum, asking him at the same time if it were identical with the parasite of *Apis mellifica*. In reply he says, "I am greatly obliged to you for a sight of the bee parasite. I have never seen a specimen before; I have only known it by a figure and description. The insect is noticed and figured, as you probably know, in Réaumur, tom. v., pl. 38, fig. 1—4. It is also figured in Sermar's 'Fauna Insectorum Europæ.' It is the *Bradla cæca* Nitzsch described in Sermar's 'Magaz. d. Entom.' iii., p. 514. I can find nothing in the specimen which you have sent different to the figure and description."

The following drawing and description of this curious insect are also from the pencil and pen of Mr. F. Smith.

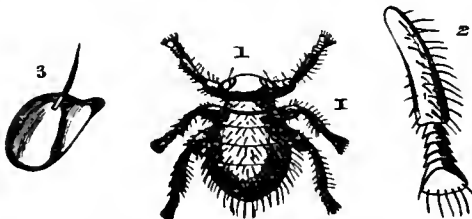


Fig. 1. The insect magnified. The letter I by its side is the natural length. 2. An anterior leg magnified. 3. An antenna magnified.

Insects apterous, blind; sex not known; of a chestnut-brown. The legs stout and long. The apical joint of the tarsi broad, widest at the apex, and furnished with stiff bristles along the

margin. The head with an oval cavity on each side in the place of the eyes, in which the antennæ are placed. The antennæ composed of two joints, the apical joint terminating in a stiff plumose bristle. The thorax transverse. The abdomen convex, pubescent, with a mixture of long, stiff hairs or bristles. The legs pubescent.

Wildman, in his "Treatise on the Management of Bees," quotes from Madame Vicat as follows:—

"The lice which stick to the bees are not generally thought to be prejudicial to them, and this may be true when there are but few of those vermin; but when every bee in a hive has two, or perhaps three lice upon it, as is often the case, we may believe that the bees are greatly incommoded by them; indeed, we may be assured of it, by their using every means in their power, though ineffectually, to get rid of them. M. de Réaumur declares that he cannot think well of a hive in which the greatest number of bees have lice on them.

"Madame Vicat had a hive near a chair in her garden, in which she used to sit at work for hours. She one day saw many bees endeavouring to rid themselves of these troublesome enemies, and endeavoured, but to little purpose, to assist them, by killing the lice with her scissors. Recollecting that tobacco is a poison to many insects, she immediately strewed a little Morocco tobacco over some bees which had lice on them. The lice fell off instantly as dead. In order to be assured that tobacco did not hurt the bees, she confined some which were lousy under a glass, placed on paper strewn with tobacco. After the bees had passed several times over the tobacco, the lice fell off them dead. She left the bees in the glass three hours, and at the end of that time they appeared vigorous and well. She had bathed some bees in water in order to rid them of the lice; but found that, though many of them fell off, they recovered themselves again as soon as the bees did. One of the lice jumped 2 inches high, to get at a bee that she held in her hand."

Finding that mine was the first specimen of this parasite captured in England, I have had some misgivings, lest in importing Ligurian bees I had unwittingly been the means also of importing a hitherto unknown enemy into this country. These misgivings were, however, set at rest by "B. & W.," who, in the course of an interesting apiarian conversation, informed me that he had observed these little pests on his English bees some eight or nine years ago.—A DEVONSHIRE BEE-KEEPER.

DIFFERENCE BETWEEN LIGURIAN AND COMMON DRONES—PACIFYING BEES.

WILL you say what difference there is in colour or appearance between the Ligurian drone and the black bee drone? as the only difference I can discover is that the black bee drone is rather longer than the Ligurian, both being bred in black bees' comb.

Would you also say how you get rid of the bees when taking out the bars of a hive for examination? as, although I have a bee dress on, they stick to me, trying to sting; and should any one else come near, woe betide him, for they are at him, as a man passing said, "like bull-dogs."—A. Y.

[The Ligurian drone has more gold colour on the abdominal rings than the common drone.

You can avoid the annoyance you complain of by a few whiffs of smoke from some vegetable substance before opening a hive.]

DRONE EGGS LAID BY A YOUNG QUEEN.

ONE of my young queens which was hatched on the 6th of June, in a small artificial swarm, has surprised me by laying a large number of drone eggs in worker-cells. At first I was inclined to think that she bred drones only, but on a more careful examination I found she had laid a few (but only a few) worker eggs scattered amongst those of drones, and giving to the surface of the combs, when all were sealed over, a remarkably irregular appearance. These few workers are now hatching out; and, as none of the drones have as yet made their appearance, this circumstance shows that workers' eggs must have been deposited quite as early as those of drones, thereby negating a hypothesis which I had begun to entertain that drone eggs were laid before impregnation had been effected, and were succeeded by those of workers after the queen had been fertilised.* As far

* Mr. Langstroth relates an instance of this kind, in page 40 of his valuable work.

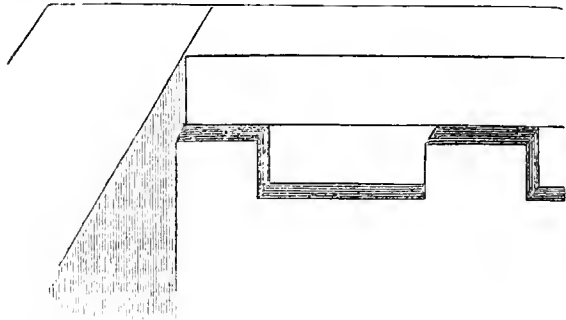
as I can judge, this abnormal laying of drone eggs has now ceased, and all appears to be proceeding in the usual manner. I should add that her majesty is a well-developed Ligurian queen.

Can any of the apiarian readers of *THE JOURNAL OF HORTICULTURE* suggest an explanation of this most unusual occurrence, which I must confess has completely puzzled—A DEVONSHIRE BEE-KEEPER?

THE WOODBURY COMB-BAR AND HIVE.

Having now, as I consider, fully tested the new bar, I feel warranted in pronouncing it to be a success. I have hived three natural swarms in hives destitute of guide-comb, but furnished with ribbed bars, and the result has been unexceptionable in every instance. In reply to the inquiry of "A. B. C.," I may inform him that the bars were adjusted at a distance fractionally exceeding $1\frac{1}{2}$ inch.

In last week's impression, the printer has inverted the wood-cut representing an interior angle of one of my hives, and by so doing has rendered it perfectly unintelligible. It should stand thus—



It will be perceived that the bars (seven-eighths of an inch wide) are rather more than half an inch distant from each other, whilst they approach to within nearly three-eighths of an inch of the sides of the box. I have not departed from the dictum of authority in this respect without due consideration; but have arrived at the conclusion that every comb in a stock-box should be of one uniform thickness, and that it is a decided disadvantage to allow thick side-combs.—A DEVONSHIRE BEE-KEEPER.

BEEES AND THE SEASON OF 1861.

LIGURIAN BEES AND SKY BEES—"GREAT HUMMING IN THE AIR" ON CERTAIN HOT, CALM DAYS.

"Ye musical hounds of the fairy king,
Who hunt for the golden dew,
Who track for your game the green coverts of spring,
Till the echoes that lurk in the flower-bells ring
With the peal of your elfin crew!"

"How joyous your life, if its pleasures ye knew,
Singing ever from bloom to bloom!
Ye wander the summer year's paradise through,
The souls of the flowers are the viands for you,
And the air that you breathe, perfume."—(*Bee Song*.)

THE bee season, as far as it has gone, has been a favourable one; and has in part made up for the terrible losses "and beggarly account of empty boxes" of the memorable and disastrous year 1860.

One of your correspondents talks of the superiority of Ligurian (or alpine bees) over the common black bee; and a most ridiculous reason, among others, is said to be that the alpine bee stands the cold better. How is it that the English bee stands the severity of a Canadian and a Russian winter? I grant that the latter insect is a little too sensitive in showery weather, but it is their nature; the wild bees are also more or less so according to their nature in the same ratio.

The fanciful notion of the superiority of the alpine bee is similar to the rage about fifty years ago for the new breed of merino sheep, which had its day—which filled and emptied the pockets of buyers and sellers for two or three years, and then died a natural death. Such I predict will be the case with this new-fangled alpine bee in this climate.

Every living creature (man not excepted) is fitted for the

climate in which it was originally located by the all-wise Author of its existence, and must, consequently flourish in that locality to the end of time in which it was intended to remain. The alpine bee may be a little more hardy than the insect which inhabits the plains of Italy, France, or Switzerland; but depend upon it, the Ligurian is deficient in some other particulars—most likely in its choice of pasture and so forth when out of its own district. Your American quotation stamps these bees as great robbers, and fitted for "places of great altitude," &c.—the high mountains of Wales and Scotland, probably.

Swarming, Caution.—A second swarm, or, as it is termed, a "cast or cut," left one of my hives after heavy rain the last week in June, and settled on an espalier Plum tree—an awkward place for hiving, as it is difficult to brush them off without endangering "a flight." It was a very dull showery morning, the sun quite obscured. I placed the hive by props in such a situation, gently touching the top of the bees, that in about half an hour two-thirds of the bees went up to the crown of the hive. I left them for an hour; but in the meantime the sun burst forth, as the clouds suddenly dispersed, and the wind was quite lulled. On my return the bees had taken a second flight and were lost, they being unable to stand the heat, which was 78° Fahr. In one of my former letters (Vol. VII. of this work) I particularly caution apiarians (tyros) to guard against this. So much for preaching and practice.

What a constant source of amusement are bees, and what a theme for writers in your well-conducted publication! But how the Editors have the patience and good nature to answer all the remarks and questions I cannot conceive.

Following a Swarm.—Your "REXFREWSHIRE BEE-KEEPER" gives a graphic description no less than four miles. In Vol. VII. of *THE COTTAGE GARDENER* I mentioned a circumstance very similar, but the pursuit was not made. I happened to be near Bridgewater, in Somersetshire, near the sea, when a farmer showed me a small swarm of bees which had taken possession of a veazel trap on his premises. The bees were busy at work in this wooden trap; and my informant told me that on scouring the country he could hear of no bees being kept nearer than four miles. The country over which these bees must have passed was a flat open country without hedges, the fields separated by wide ditches, or reens (rhines) as they are called in Gloucestershire and Somersetshire. On close examination of the trap I could see both honey and brood-combs.

Sky Bees.—Your correspondent "G. C." has mentioned "sky bees;" these bees being only myriads of small gnats and flies, mostly ephemeral, and some, I have no doubt, only live part of a day.

The sound of these insects can be heard always in the early part of the summer, particularly in June, on a clear, very calm, hot day, when the thermometer ranges from 68° to 80°. They make an incessant hum, and fill the air for miles together. I have been often astonished at walking several miles on such a day as I have described, and still heard them, exactly like that of a distant swarm of bees on the wing. Your correspondent might have looked long enough, as the insects are scarcely visible to the eye, except through a magnifying-glass; and they are not so distant as "G. C." imagines. It is only their infinite number which causes them to be heard so loudly and distinctly. The sound continues several hours in such a day as I have described, and seems like the joyous song of praise to the great Author of all insect life.

Since writing the above I have found a passage in that excellent standard work, "White's History of Selbourne," which I quote at full length:—

"There is a natural occurrence to be met with upon the highest part of our down in hot summer days, which always amuses me much without knowing the cause—and that is a loud audible humming of bees in the air. Any person would suppose that a large swarm of bees was in motion. This noise was heard last week on June the 28th."

"Resounds the living surface;
Nor undelightful is the ceaseless hum
To him who muses. At noon,
Thick in you stream of light, a thousand ways
Upward and downward, thwarted and convolved,
The quivering nations sport."—(*Thompson's Seasons*.)

A note by the reviser and editor of the last edition of "White's Selbourne" is as follows:—

"This sound does not proceed from bees, as our author supposes, but from the common gnat (*Culex pipiens*). We particularly noticed this in August 1832, in a lane which leads

from the back of Warrington Crescent to the Newhaven road. This mighty congregation of gnats formed a lengthened column of 200 yards. Their numbers we believe to have been greater than there have been human beings on our globe from the creation to the present time.—E.D."

I can add that this curious sound is universal at particular times, and on those sultry and calm sunshiny days, during the short life of these insects in most localities throughout England.

To return to our own true English bees, I am rejoiced to say that they have made good progress in honey-gathering up to this day (a tempestuous wet day, 18th July); for one of my swarms of the 11th June is 30 lbs. weight, exclusive of hive and board. Except in the countries of heath, I fear the honey season is nearly over.—H. W. NEWMAN, *Hillside, Cheltenham.*

SKY BEES.

A SHORT time since walking with my wife in our garden, my attention was suddenly drawn to a sound like that described by your correspondent "G. C." And a neighbour having lost a swarm of bees a short time before, I jumped somewhat hastily to the conclusion that the missing bees were with me. I commenced searching, and was surprised to find the sound following but not the bees; until, arriving at a more open part and looking up, I discovered a number of flies flying very rapidly backwards and forwards, and emitting a sound like that of swarming bees. Will not this account for the noise heard by "G. C."?—J. C.

THE SALMON.

It used to be believed that the young salmon migrated to the ocean when only three or four weeks old; in short, that within so brief a period they were transformed into the silvery smolt, which, within six weeks, returned to the river as a grilse, weighing from 3 lbs. to 9 lbs. For the rectification of this inveterate mistake we are indebted to the late Mr. Shaw, of Drumlanrig, forester to the Duke of Buccleuch. By a series of experiments, of undeniable accuracy, he demonstrated that the little fish termed parr, and in England penk, fingerling, or sanilet, is the true fry of the salmon, and that not till it is twelve months or even two years old, does it assume the smolt aspect, and migrate to the ocean. At the end of either of these periods the finger-like marks on the sides of the parr begin to be covered with a second lamination under the first scales; and it has been ascertained that fry without this new lamination show no desire to migrate, and that if placed in salt water they certainly die. But, arrived at the state of smolts, their desire to migrate is so irresistible that they have been known to perish by throwing themselves out of the pond in which they are confined. A most singular anomaly is exhibited in the varying period at which they become smolts and migrate. In the breeding-ponds at Stormontfield, near Perth, this has been observed constantly, and, singular though it be, it is not unprecedented, for Mr. Shaw observed the same peculiarity in the sea-trout. About half the fry do not assume the silvery coat of the smolt until the end of the second year; and thus while they weigh about half an ounce, and are still veritable parr, those which migrated have returned from the ocean weighing, it may be, considerably more than 5½ lbs.—the exact weight of the first grilse known to have been one of the smolts liberated at Stormontfield, and honoured by being daguerreotyped as the first-fruit of a most important experiment in pisciculture.

The exodus of the smolts from the river is chiefly from the middle of April to the middle of May, though earlier shoals are on their route in February and March. Mr. Shaw once had an opportunity of observing the rate at which they proceed seaward, and found that it was about two miles an hour. Arrived at the ocean, a six weeks' sojourn amid the bounties provided for them has such an effect upon their growth that the tiny smolt is converted into the vigorous grilse, weighing from 5 lbs. to 8 lbs. Next season this weight will be doubled; but how long this progression in size will continue we cannot guess, as the actual limits of the salmon's age cannot be ascertained. If endowed with anything like the longevity of the pike, salmon may rival Mithuselah. Gesner relates that a pike was taken in Suabia bearing an inscription which demonstrated it to be 267 years old. It is maintained by Mr. Boccausi that the microscope shows laminations on the scales of the salmon, denoting his age, just as

the rings on an oyster shell reveal the antiquity of that estimable mollusc. As to the effect of sea fare on adult salmon, the evidence is quite satisfactory. The Duke of Athole marked a spawned fish weighing 10 lbs. After an interval of thirty-eight days, during which it had performed its journey to and from the sea, it was caught again of the weight of 21½ lbs!

It is when running up the rivers, at the rate of about three miles an hour, that the history of the salmon terminates, by his being circumvented by the wile of man plying the murderous net, or angling with the treacherous hook. Of the pleasures of wandering along the banks of a famous salmon river, and engaging in a contest with a 20 lb. fish, fresh from the sea, the late worthy Mr. Young declared that "it beats the Grecian games all to nonsense." We have witnessed the discomfiture of a dear old Doctor in Divinity, well-known on the banks of the Tay for learning as well as piscatorial skill. He had hooked a heavy fish immediately above the Linn of Campsie. The fish, after dashing up and down with uncontrollable vigour, and repeatedly trying to shake itself rid of the hook, by springing some 6 feet out of the water, at last made a rush at the linn. The contest was suddenly terminated by his floundering into deep water, which forced him to swim for his life. Still grasping the rod, he rose, puffing, to the surface; but prudence forbidding a swim in pursuit over the linn, he threw it from him, ran to a boat as fast as a man so water-logged could manage, and in it descended the roaring linn in quest of rod and fish. The rod was recovered, minus the line and the salmon.

Better luck had Duncan Grant, a shoemaker, in the Tweed. After a seven hours' fight with a huge fish, which at last took refuge sulkily under a stone, Duncan was so exhausted as to think of ending the struggle by breaking his tackle, when hope revived as he put into practice this original expedient. Laying himself comfortably on the bank, with the line between his teeth, he proceeded to refresh himself with a nap, coolly saying to himself, "If he rugs when I am sleepin', I think I'll find him noo." After a three hours' sleep, a furious tug awoke the invigorated cobbler. Starting to his legs he followed the fish, which was now rushing down the stream with prodigious speed. Exactly twelve hours after hooking him, he *cleiked* out of the water a magnificent fifty-four pounder.

What a trying moment is that, when the *cleik* is about to secure the prey! Often have we seen unskilled hands miss the fatal blow, and, in a second, the noble fish was free, and Piscator speechless! On such an occasion it is well to remember Burton's saying, "If so be the angler catch no fish, yet has he a wholesome walk to the brook, and pleasant shade by the sweet silver streams," where, as Leigh Hunt has sung, the finny tribes lead—

"A cold, sweet, silver life, wrapped in round waves,
Quickened with touches of transporting fear."

—(From "Good Words.")

OUR LETTER BOX.

POULTRY FOR PROFIT (W. H. H.).—Keep Partridge-coloured Cechin-China, and Speckled Dorking pullets in equal numbers—none older than one year—and one Dorking cock to each half-dozen pullets. By this arrangement you will have a good supply of eggs at all seasons, and all the chickens will be excellent for the table. Have the whole of the brick floor of your hen-house covered 3 inches deep with the coal ashes.

PIGEON-HOUSE (A Subscriber).—Without further particulars I cannot suggest any reason why your white Dragon Pigeon shivers and does not lay. Neither do you say what kind of Pigeon-house you require, or in what position it is to be built. I can only say, let the northern and north-eastern sides be close, either brick or wood, the whole space had better be roofed in to keep the house dry. Glass would be best, but slate, tiles, or even felt well tarred and sanded would do. The south side may be of wire netting or lath-work, with an entrance to let them out occasionally. As to nests for twenty Pigeons they should be arranged in ten pairs, shelves 1 foot wide and 18 inches one over the other. These shelves divided into three-foot compartments, having a nest at each end would be the simplest, or pens would be preferable. Mr. J. M. Eator, of 81, Upper Street, Islington, has published a diagram of first-rate pens, and in THE COTTAGE GARDENER of February 19th, 1861, you will also find a very good plan for pens or the internal arrangement of a Pigeon-house. Red-coloured, Pigeons are best bred from two reds, or one red may be paired with a yellow, black, or even blue, but the young are not likely to be so regularly coloured. Other colours will sometimes breed reds if they are bred from or have been crossed with reds previously. I once had a pair of blue Dragons that occasionally threw reds.—B. P. BRENT.

RABBITS FIGHTING (J. G.).—No place can be worse for Rabbits than a pit 6 feet square. Such a small place is only of a size for one doe, and nothing you can do will prevent their fighting if you put more than one in. A pit is a very bad place for Rabbits because of the impossibility of either cleaning it out thoroughly, keeping it dry, or ventilating it. The place is always full of impure air, causing disease.

ERRATA.—Page 331, col. 2, line 9 from top, for "pastor aristana," read "pastor Aristaus." Line 27, same column, for "more," read "some."

WEEKLY CALENDAR.

Day of Month	Day of Week	AUGUST 6—12, 1861.	WEATHER NEAR LONDON IN 1860.							Moon Rises and Sets	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.					
				deg. deg.			m. h.	m. h.	m. l.				
6	Tu	PRINCE ALFRED BORN, 1844.	29.471—29.553	67—41	S.W.	.08	33 af 4	38 af 7	sets	1	5	36	218
7	W	Asters.	29.789—29.758	68—40	W.	—	35 4	37 7	38 a 7	2	5	29	219
8	Th	Solidago.	29.818—29.562	60—48	S.	.26	36 4	35 7	57 7	2	5	22	220
9	F	Cereopsis.	29.726—29.691	65—39	N.W.	—	38 4	33 7	14 8	3	5	14	221
10	S	Prunella pennsylvanica.	29.830—29.765	64—47	S.W.	.72	39 4	31 7	34 8	4	5	5	222
11	Su	11 SUNDAY AFTER TRINITY.	29.550—29.500	76—49	W.	.01	41 4	29 7	55 8	5	4	56	223
12	M	Lavatera arboresc.	29.745—29.632	65—49	W.	.02	42 4	27 7	23 9	6	4	46	224

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 69.2° and 47° respectively. The greatest heat, 92°, occurred on the 11th in 1833; and the lowest cold, 36°, on the 6th in 1833. During the period 137 days were fine, and on 101 rain fell.

CROSS-BREEDING GAZANIAS.



My best thanks are due to some one for making known at once, that the plan of slitting the involucre of *Gazania splendens* did not keep his flowers open day and night. I believe many plants of the composite order would seed in this climate if we could prevent them closing up at even. Damp or moisture shut up with the florets

for so many hours, and the chill at night, prevent the action of the pollen, or perish the young seed as soon as it receives the germ of life: therefore, a sure plan to prevent this is of much greater consequence than one might think, if he only looked at it in the light of a handy turn to help on the gayness of a flower-bed; and unless the failure was made known, the cure might not so readily suggest itself at a future opportunity.

Besides, to another class of readers there is a little philosophy hid in the straight jacket. My flowers were open day and night all through May and June; but my plants were of a different mould, and my plan much more so than falls to the lot of bedding plants. My plants consisted of so many *Gazania rigens*, and so many of *splendens*. My object was to cross them. They were two years old last March when I turned them out of their pots, and towards the end of May and many days in June they were in a temperature of from 90° to over 100°, but during the nights they were very nearly as cool as if they were in the open air. They were planted in a row quite close to the inside front of a cold pit, the bed being level with the front wall of the pit; and when they were in flower the glass-lights had to be tilted day and night, for if the lights were let to rest on the front wall the flowers would be crushed. The same thing or treatment was in the idea of giving them a front-orchard-house treatment, as was suggested last winter; and the plan of submitting plants to an enormously high day temperature, and to allow them to get so cool at night as barely to keep late spring frost from them, has been recorded in the first or second volume of this work, from a practice with some seeds and seedlings at Shrubland Park.

It was a regular set plan that was adopted with these *Gazanias* for a very particular purpose. The plan is now before you in a more perfect shape for future use; and if ever you should have to do with half-hardy plants that

are very difficult to seed, or to receive foreign pollen, I would advise the same as against all the ways that ever I tried to get out of a fix. It was only an after-thought of mine to suggest that way for flower-beds; but you see some one has taken it up and failed, probably because the strength of his plants, and the power of his stimulant—his degree of heat, were so much less than with me. But for having tried the thing, and for the bold-hand front of telling me it was non-hygrometric, I just took another turn and at the first flower discovered a more easy way to keep these flowers open as long as the last even in the coldest part of this island. Make only one slit, and only half way down—that is to say, to the bottom of the lowest circle of the scales of the involucre; then turn up the lower edge of that cut, and gently tear off the upper half of the belt, by balancing the hand, just as if you were tearing a leaf out of my book and wished to leave a straight edge, or as you would tear out a cheque from your cheque-book; either way is easier than the dressmaker's way of slashing jackets.

I am sorry to have to say that I have failed to cross, or seed without crossing, any one of these flowers. I rooted out the row in the pit, all but two plants, one of a kind, before I heard of the failure; but I had a strong row of two-year-old *Gazania rigens* across a border, and the flowers yielded at once to that way of relieving them from their belt pressure at even. Yet the ray florets curled the edges without closing.

My reason for leaving a plant of each kind inside the pit will sound strange to some people, but strange stories could be told of such things till you were tired to hear them. Some gardeners say we have not half light enough in our climate for exotic plants, but my requirements assure me we have twice too much light for too many of them. I can cross some exotics only when the day and night are about of equal length, as is natural for them in a belt round the globe, in which belt the days and nights never vary, and there is neither dawn nor twilight. Our long days are too long by far for such plants, for they never can receive their natural daily rest so near the north pole as we inhabit. It is by taking advantage of this natural state of things, and by forcing plants so as to flower out of season, and in a more suitable climate to themselves, that I have been kept from the throne, and from satisfying my ambition.

But I am in alliance with his majesty of cross-breeders. I sit in his councils; he has reviewed my forces, and looked over my armoury. He knows his strength and how best to use it; and, moreover, he knows that he can seed plants with ease, which I cannot seed by forcing under my system; but when the days and nights come again to be of equal length I shall have another trial with these two *Gazanias*, for that was the reason for leaving them in the pit. Should I fail at the equinox I shall move for leave to send two couples of my oldest plants to his majesty aforesaid, with a request for him to try the effects of the vernal equinoxes in pollensing them; but you are quite free to believe the moon and

the stars have more influence on crossing than such periods.

CROSSING LOBELIAS.

Mr. Darwin is at the bottom of all this. I should never have thought of exposing myself to the risk of being hauled over the coals so often were it not for his questions, and from knowing there is no way so sure of getting out of his grasp as by telling him of things in our line just as they are. Respecting his request about *Lobelia fulgens*, *cardinalis*, and *speciosa*, the only three tall kinds which were in cultivation when I was engaged on them. Two of them, but I forget which two, were completely sterile at the second cross—that is, all the seedlings of the second generation were quite sterile; but the third would produce three generations of seedlings, and these seedlings resisted any farther advances from the pollen of any of the parents, or of any of the seedlings which I kept. I believe I had every variety of tall *Lobelia* that is now in cultivation as early as 1835. One of the best of them is *St. Clair*, and I had it in 1833. It was lost in 1836, and appeared with some other breeder many years afterwards. I had one finely grown specimen of it in a pot, which was 9 feet high, and the flowering part of the spike was nearly 3 feet long. It was measured by the present Mr. Low, of Clapton, and one of the Messrs. Dickson, of Chester. On their travels both happened to meet in that garden the same day. Both had seen all my *Lobelia* seedlings; and if either of them has seen one seedling of that race different from what he saw that day, these pages are open to receive the record. But as his majesty succeeded in crossing several other seedlings which were absolutely sterile under my system of growth, and I have been prosperous with some seedlings which Dr. Herbert could not push further, I am quite satisfied that cultivation has as much influence over the power of breeding as it has over the improvement in the form and substance of florists' flowers.

I should be curious to know if the present *St. Clair Lobelia*, or any of the finer seedlings of that race, are barren now. Mr. Kinghorn is the last breeder whom I know to have influence with *Lobelias*, and he could tell us their present standing sure enough. I recollect that *Lobelia speciosa*, a blueish-purple flower, was received as a genuine wild kind at the time I went through the course with them; but in 1836 Dr. Herbert recorded, in his "*Amaryllidaceæ*," that it was certainly a garden seedling, a cross between *fulgens* and *syphilitica*; but I can well remember that that cross seedling would come quite true and never vary from seeds thirty years back. It is not so tall as *fulgens*; but of all the *Lobelias* that I have seen *speciosa* would be the best to work with *fulgens* and its seedlings, to infuse that degree of the purple tint with the crimson and scarlet which makes the fashionable mauve colour in its highest or deepest shade; and I would advise cultivators to attempt the true mauve colour in *Lobelias* on spikes that would vie with those of *Gladiolus* itself.

I have got the second degree of mauve, and the first or best magenta in *Nosegays* this season; but I have overdone the seedlings, so that practically they are of no value save as breeders. If I recollect rightly, the *St. Clair Lobelia* comes constantly in the second generation from *fulgens*. Mr. Darwin's finest seedling from *fulgens* will possibly, by the pollen of *fulgens*, produce the true *St. Clair*. The question is, Can the breed be raised higher or pushed beyond *St. Clair*? My experience says No; but the influence of cultivation through a course of years supervenes, and will very likely subvert my testimony. In two years more Mr. Darwin will be in a position to prove the case from his own seedlings. I hope he will also get the blood of *speciosa* into his strain.

DEVELOPMENT OF COLOUR IN FLOWERS.

It is a curious saying to state that colour can be made to grow, but the fact is certain. A black or brown spot

not bigger than a pin's head has been made to grow in *Pelargoniums* to the size of a broad Windsor Bean; and all the pink, rose, scarlet, and white in that aristocratic race have been grown from small and very insignificant beginnings. In 1858 I was at the beginning of this century with one shade in seedlings—only fifty-eight years behind time. In 1859 I got as far as the battle of Waterloo. Last year I advanced only about five or six years; but by the end of this season I expect to be well on to 1840; and when I am "up to the times" I shall fulfil prophecy and drown all the bedding *Geraniums* that existed in 1855 in the bottom of the Thames. The new order of seedlings will supplant most certainly; and although it is a most pleasant occupation, it is a most wearisome one at the same time.

In my haste to gain time I have "run" many a good breeder by crossing, so that the seedlings could not stand on their legs—that is, that they were so reduced in constitutional vigour as to be beyond the power of cultivation to rear them. The phrase is not mine, at least not its meaning. Dr. Herbert often alludes to the same thing. The "run" is now by two ways—by pollen and by breeding in-and-in. My baby anthers in *Pelargoniums* have the very same effect on the next and succeeding generations, as Mr. Standish and all who have "worked" the *Rhododendrons* since Mr. Smith, Lord Liverpool's gardener, have proved in-and-in breeding to do in that race. They ran them till the seedlings were past rearing. Now, mark this difference: in *Pelargonium* breeding in-and-in is the only power we have of improving the breed in strength, in health, and in "properties;" while in *Rhododendron* breeding in-and-in soon ruins a race, and unless a fresh kind, a wild species, is got to infuse fresh vigour into the in-and-in-got seedlings, their offsprings would soon fail and could not be reared. But Mr. Standish is the godfather of that race; and I do hereby call upon Mr. John Standish, of Bagshot Nursery, to tell how it is possible for any one to debilitate a strain of *Rhododendrons* so that no one could rear the seedlings. No hemming or hawing will do, we must have it chapter and verse—that is to say, the origin and extinction of species of *Rhododendrons*. Some *Rhododendron* cross-seedlings are as genuine species as any in the books, being quite distinct in looks, and coming perfectly true from seeds if care is taken of them when they are in bloom. But the fact is this—books and botany, physiology and Nature, put together as we do, are just three very different things, which any three men may study and each find out things which might never occur to the other two.

"If Mr. Beaton thus hints at new and curious facts, he must not be surprised at being plagued with questions," so writes Mr. Darwin. Now, I take it that no writer in this Journal can be so complimented by any of his readers than when he is questioned in order to get at the bottom or the meaning of what he writes about. I do not object myself even to be called over the coals, provided it is not done in a carping spirit. But I did not volunteer to lay myself out for such questioning; I had no intention to say anything about pollen, or this variegation in plants, but what is well known or received as if it were well known. As I have just said, Mr. Darwin is at the bottom of it all. I could not answer his questions against my convictions; but the more questions he asks and the more searching he puts them the better he will please his humble servant. Even grumblers are as beans and bacon to a public writer; but questioning in a manly spirit and for free inquiry, is like the hot rolls and butter to his breakfast-cup, and he ought to aspire to please the hand that feeds him. Having been fed thus far, I shall give a *résumé* of the explanations in answers to Mr. Darwin. The pollen of *Lobelia fulgens*, and the pollen of *Lobelia speciosa*, together with the pollen of plants of two generations from their union failed to fertilise any one of the seedlings of the third generation. I would recommend to Mr. Darwin to apply the pollen of *Lobelia speciosa*—

that is, the cross plant from the syphilitica, on the stigma of his best scarlet seedling from fulgens, then to select the best seedling of that cross with the pollen of speciosa, the object in view being to produce the finest colour which scarlet and purple can be made to yield—that is to say, true mauve colour, if the tints are in the right proportions. But if that mixture should be found to make the seedlings too dark—too much purple, say, then apply the pollen of fulgens to the darker seedlings in order to lighten the shade. Secondly, the treaties of alliance between his majesty of cross-breeders and the writer do not empower the latter to demand the former to do or say a single thing to a third party, but he knows his majesty has been always willing to tell of all his sayings and doings. As to the case in point, the blue and white Anemones, nothing is more common than for original blue flowers to sport into white-flowering varieties without crossing. Thirdly, in Pelargoniums and in Rhododendrons the pollen of the shortest stamens has been proved to produce seedlings of more dwarf habit than the parents; and by applying the pollen from the shorter stamens to the stigmas of the dwarf race, again and again, the seedlings at last will be so faint, for want of a better term, that no art can grow them. But Mr. Standish is respectfully requested to state about Rhododendrons, and, lastly, the more questions, the more luck. D. BEATON.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Continued from page 334.)

FORMS AND PATTERNS.

THE wedge-shaped patterns and the varied circles I have already described, and once I mentioned the cut-out pattern, such as a Fleur-de-lis, whilst another time it was the pointed circle, and the equally pointed centre on a paler or dark ground, of which we were considering.

The questions we have to take in hand now, are what shapes and patterns are allowable and artistic; and how, when chosen, we may make such patterns.

The styles, of course, may be very different; the size of the flowers, and their colours, having much to do with this.

In many cases, where exceedingly small flowers are chosen, the pattern may be rather elaborate, and at the same time most perfect in taste and execution. Have any of my readers seen a wreath for a bouquet on an entirely white ground? White Lilac I must name once more, for it is so useful a resource, or small white Roses; or, for the very best, the common English May blossom, or wild sweet white Violets. On flowers like these every tint of colour tells, and there was a beautiful Forget-me-not, of which the readers of this Journal must have read some months ago what Mr. Beaton said—how it would force so capitably, and be such a useful winter flower.

Now, a wreath of Forget-me-not arranged on a white ground, would make a charming sentimental bouquet! I think floral designs are very preferable for flowers, to stiff, and straight-lined patterns.

A wreath of Rose-buds, or of Rose-buds and blue Hyacinths, would look very pretty; or a scroll pattern in little dotty flowers. Nothing large and solid looks half so appropriate as these designs for flowers.

Then, in this way we can vary the ground colour and make the wreath quite different. A ground, for instance, of very pale pink or delicate mauve Verbenas; yellow Banksian Roses, with a wreath on it (only by candle light yellow is apt to look like a dingy white) of purple Violets, of small purple Geraniums, or of the purple Lilac. All these grounds might in turn be used, and have wreaths drawn on them respectively of pink, or blue, or white, or, which is very pretty, wreaths in which the

thicker parts are marked in colour, while the edges are shaded off into a feathery white. Purple Lilac and Lilies of the Valley are extremely pretty. On a white Chinese Primrose ground, the scarlet Begonia again is very pretty; and sometimes these patterns look lovely when the ground of the centre is of one flower, and the outside of the wreath of quite a different sort.

I have seen flowers arranged in a succession of round bunches, but I did not admire them, as they look very stiff.

Stars, again, are sometimes freely scattered; but except the self-shaped stars of Jasmine, and flowers of that kind, I have little sympathy with astronomical designs; though Ursa major, or Orion, or the Pleiades, might form, no doubt, a very instructive group for a highly astronomical young lady to carry in her hand!

Sometimes a monogram forms a pretty pattern; but that would be rather for decorations, or for some large vase.

The monogram should be cut out in card or zinc; and I think, perhaps, the easiest plan is to paste two cut-out cards together, so as to form a very solid board, the inside of the cards being cut out all round, so as to make them merely a stiff kind of frame.

Having rendered the frame stiff by pasting, take a piece of wire all round the shape, carefully binding it over all the way you go. A varnish of sealingwax melted in a little spirit of wine and applied very hot does most excellently for preventing the paste from softening; but it needs extreme care not to let the composition by any accident take fire. I have never ventured to use it hot at all. When used cold, the varnish being thinner is longer drying, and sometimes two or three coats may be desirable.

As a general rule, black shows as little as anything on wires, cards, &c., when used with flowers; but I suppose white sealingwax could be used, and the varnish would answer better for use amidst white flowers than that made of red or black.

These frames fastened firmly by wires carried down, parasol-like, among the stalks, answer very well for keeping the space open that is to be filled with some peculiar colour.

Sometimes it is difficult to keep the surface level if different kinds of flowers are used in forming the ground, and for the pattern on it. It is, however, essential to have the surface level, and it can be kept so by care. Of course, it is understood that great care must be taken rightly to fill up any interstices in the monogram, or pattern, through which it is supposed that the ground-work shows.

WREATH DESIGN ON A BOUQUET.

With a white wreath the ground may be precisely of those flowers which we can get most easily.

Snowdrops, Lilies of the Valley, or little sprays of Heath or Deutzia will be our wreath; and pink Heath, or mauve Verbenas, or scarlet Geraniums, or crimson Roses, or Violets, or Chinese Primroses, may any one of them be used as a ground.

The ground should be first begun, and supposing the ground to be pale pink, and the wreath a green and white one, it would answer very well to have one large pure white flower in the centre with little branches of surrounding green, or Lilies like the wreath, edging and softening its clear cut edge.

If the ground is white, and the wreath is of scarlet, a red Camellia with sprays of Heath to match, is a most perfect centre.

The bouquet should be made up firmly just as usual, till it comes to the wreath itself, then every flower should be placed with the greatest care, filling up with white or letting the colours of the wreath appear but little, so that the due effect is by some means wrought.

After the wreath there should be a band of ground

colour, wider considerably than the wreath itself; and then, with the usual fringe of green and white, the outer circle is perfectly finished off.—E.

(To be continued.)

PIT FOR GENERAL PURPOSES.

I wish to erect a pit with heating apparatus, in which to keep *Petunias*, *Verbenas*, *Geraniums*, *Calceolarias*, *Cinerarias*, &c., through the winter. I should feel much obliged for your opinion of the following plan suggested by a friend. Inside measurement to be 11 feet by 7 feet; the ground to be excavated 4 feet or 5 feet deep, and built up to within a foot of the level of the ground with nine-inch brickwork, the remainder $\frac{1}{2}$ inch where the break occurs, leaving a ledge to be boarded across for a false bottom to be 3 feet or 4 feet above the flue; the fireplace to be at the end and the flue going all round the pit, terminating with a chimney near the fireplace, a ventilator to be in the back wall. I thought of having three lights glazed with rough plate; but my friend advises one light to be clear sheet glass, as I might bring flowers on to bloom sooner under that. My chief desire is to grow window plants, with a few for bedding purposes. I thought of only making use of the heating apparatus when likely for a frosty night, and even through the day when the thermometer stands near freezing-point. In ordinary winters I have kept my plants in a cold frame, but the last two I have had them all killed. I wish to know if the dry heat of the flue will be injurious, and if so how it can be remedied; and whether it would answer the purpose of striking cuttings, starting plants in spring as well as the common dung-bed. I may as well state the aspect is south-west. I have estimated the cost about £10. I should like, of course, to have one to answer every purpose.

If not asking too much at once, may I trouble you for a list of a few other plants I might grow successfully with such a pit?—A. B. C.

[As you are only one of many who are wishing for similar information, a few random thoughts on your letter may not be unacceptable.]

For all merely keeping of bedding plants, &c., through the winter, a deep pit is not desirable, as the deeper it is, other things being equal, the more likely will the plants be to suffer from damp. In making a pit from 4 feet to 5 feet below the ground level you would require to sink the stokehole 2 feet more in order to heat the pit by a flue, if the flue stands on the floor of the pit, and this depth, unless in a dry place, would either give you water to trouble you, or necessitate a considerable expense for draining to keep all dry. Besides, as we presume that you mean to have a wall above ground—say 2½ feet at back, and 1 foot in front, even on your plan of building, a considerable quantity of bricks will be swallowed up to enclose a space that after all would only be 11 feet by 7 feet.

The plan you propose is an excellent one under the circumstances, as far as the temporary flooring is concerned. We have several times recommended a similar plan, even when the wall was carried up solid, or hollow uniformly, by laying a ledge of bricks out an inch or so wide, to receive the floor of boards, and in such a pit as yours we would have at least a couple of such ledges, one within a foot of the front wall plate, and another 2 feet or 18 inches from it, so that when plants got rather tall the boards could be whipped out and placed at the lower level, which would give the plants all the more headroom. Even in a common pit, with the boarded floor rather open—say two-inch spaces between the boards, such floors are a great advantage for equalising temperature, and even moisture in the atmosphere. Many things do not do well when set at once on the sanded or cindered floor of a shallow pit or frame, and they are very quickly heated and quickly cooled, the moisture within being quickly thrown into vapour at one time, or deposited in mist and hoar frost at another, requiring, therefore, more care in air-giving and protecting. But in such a pit as you contemplate, the great body of air enclosed will be a security against either extreme so far, and the lighting of a fire when necessary will keep that air more in motion than in a mere cold pit unheated. Unless in severe frost, however, plenty of air should accompany the lighting of the fire, or bedding plants will become weak and drawn.

For mere bedding plants and window plants of a moderate size, a pit about half the depth would just be as useful, and you

would not be so likely to encounter damps from rains soaking into the walls, or springing up into your stokehole and making your flue and furnace damp. But for general purposes, such a deep pit would be the most useful, as you might grow largish specimens in it in summer, or you might appropriate it to growing Cucumbers and Melons in boxes above your flue. A nine-inch flue would be large enough for such a place; and it matters little where it runs, though under general circumstances it might be as well if it was a foot from the sides all round.

If such a pit could be changed into a little house—say 2 feet or 3 feet wider, the expense would be no great deal more, and there would be no comparison in the amount of interest and enjoyment it would yield. You might then have a pathway in the middle 2 feet wide, with a moveable sparred platform on each side made into pieces, so as to be easily moved, and a narrow shelf or two over the pathway; or even one over the platforms for little things in winter, would enable you to hold more things than you could do on the mere level floor of a pit, and, best of all, you could work amongst them and attend to their varied wants in winter—whilst in a common pit, with no means of getting at the plants except by opening the sashes, they run a risk in continued bad weather of being either frosted, parched, soaked, or burned up. Even if compelled to have such a pit as you propose, if the welfare of my plants and pleasure in attending to them were the chief considerations, I would have the back flue a foot from the back wall, I would have a small door in that wall, make the top of the flue a path, have the platform only for that width, and make up for that space by having two or three shelves against the back wall.

I have written on the supposition, that for some reason the sloping glass roof should not be much above the ground level, and that therefore there is something like a necessity for sinking into the ground in order to obtain depth and headroom sufficient. The idea of economy as respects warmth is also, no doubt, worthy of consideration; for though, when the ground gets cold outside of a sunk wall, the wall itself will be constantly parting with its own heat and the heat of the enclosed space, still as frost seldom penetrates above a foot or 18 inches, and as the sunk wall even when not isolated is free from being much influenced by sudden atmospheric changes, it will neither get cooled nor heated in anything like the same proportion as a wall exposed fully to all the changes of our atmosphere. A heated pit, with much of its wall freely exposed, loses heat fast by radiation from the walls, and especially in cold, windy weather.

Nevertheless, except in particularly dry places, so great is my dread of damp in the case of all plants merely requiring protection, or just enough of fire heat to keep frost out, that had I such things to do now, I would uniformly build on the surface of the ground instead of sinking beneath it; and I would concrete the floor of the pit inside, to prevent so far moisture rising from below, and in winter I would take care that not an extra drop of water should be spilled. With the same amount of height of wall, we would thus avoid the trouble and expense of removing the soil to the depth of from one to two yards, and though the wall would be exposed, we would neutralise that exposure so far by making a fourteen-inch hollow wall, instead of a nine-inch solid one, which would take hardly any more bricks, and would secure the inside bricks being kept more warm and dry, at the extra expense of having a coping-board 4 inches wider. For keeping out frost, and keeping in heat, we have proved that these hollow walls are a great economy. Any good bricklayer knows how to tie such a wall together, for we do not mean that two four-and-a-half-inch walls shall be built with an open space all the way between them. When properly tied the wall will be nearly as strong as a solid wall, and vastly more suitable.

Under such an arrangement, if the surface ground is hard, there would be no necessity for sinking down above a few inches for a foundation. If not solid enough, a concrete foundation will be cheaper than bricks; and if not to be used directly, a layer of tar on the surface of the concrete will prevent damp rising in the wall. For such bedding and window plants in a pit 7 feet wide, we should consider 30 inches in front, and from 52 inches to 60 inches at back, ample size enough; and if the flue went close to the front and back wall, there would be ample space for a floor boarding 9 inches or so above it. In such case the best plan of giving air would be by sashes. In fine weather they could be off altogether. In mildish, muggy weather, they should be tilted (raised) back and front, so that there may be a

thorough circulation. Air should always be given at the top first, and, unless in severe weather, fires should scarcely be lighted without air being given.

If following our advice, you would make your pit into a house, 9 feet or 10 feet wide. If that was built on the surface you would have the pleasure of walking into your house on the level, or even stepping up into it, instead of descending into a pit, some 2 yards below the general level. Such a pit-house might be $3\frac{1}{2}$ feet high in front, and $7\frac{1}{2}$ feet to 8 feet high behind—for a sloping roof—a path in the middle, a level platform in front, and a sloping stage of from three to four steps at the back for setting dwarf bushy plants on. The extra expense in width might be saved in having a fixed roof, formed of rafter sash bars, 3 inches deep by $1\frac{1}{2}$ inch wide, and placed so as to receive squares, 16 inches across and 12 inches deep. Three openings for ventilators could then be left in the front wall, 18 inches by 9 inches, and so that the air would pass over the flue. Three similar ones, but 1 foot deep, should be left near the ridge in the back; and thus making and moving sashes would be dispensed with. Such an arrangement would combine a great amount of utility with pleasure, and afford nice recreation in cold days when you could do nothing outside. A nice span-roofed house might also be formed, with side walls 3 feet, and height at the ridge 7 feet; ventilators would have to be placed there by some of the modes frequently adverted to. Either of these modes will be an improvement on the deeply sunk pit, and will be just as useful for other purposes in summer; and even more so, because you can get among your plants whatever you grow.

Ventilation has been referred to according to the circumstances. You must not depend on one ventilator in the back wall. One would make a too rapid draught in one place, and the ends if the door were shut would be in a state of rest. One advantage of ventilators in the front wall, as adverted to, over mere lifting of the sashes there is that the fresh air will not only be heated, but will be diffused beneath the plants as well as above and among them. For ventilators in the wall, a sliding piece of wood will be as good as any, though a small frame with a square of glass in it would be better. In severe weather a small bag of shavings or hay may be stuffed behind the ventilator; but that will only be required in severe weather.

As to glass, we would have nothing to do with rough plate, it is so dismal in winter. Use British or best foreign sheet, not less than 16 ozs. to the foot. If 21 ozs. it will be cheaper in the end, though we have had few casualties with 16 ozs. If such glass should be too bright in summer, the cheapest shade would be glazed gauze fixed in pieces inside the size of a light, by means of a small ring at each corner. If just past dry when not wanted it will last for many years, and cost scarcely anything at first. If anxious to preserve bloom in summer, pieces might also be stretched over the ventilators which would keep flies and bees out, and yet admit air freely if not too much glazed.

In ordinary seasons, as you do not wish to force much, all the heat from the flue to keep out slight frosts will not dry the air too much, if the floor is kept moderately damp; but in a continued frost or when a sharp fire was necessary, it will be advisable to place vessels of water on the flue, and even to sprinkle the stages in sunny days when it would not be necessary to water the plants. In such frosty weather, if the sun is at all powerful, be sure and give a little air early at the back in the morning; and if the air be cold and dry in the shade, rather let the fire out in preference to giving a great deal of air under such circumstances. With a little given early, it will be warmed and moistened before getting among the plants; and if the house or pit rises 10° or 15° more than usual, the plants will like it rather than not, as sun heat with a little air on will never draw or weaken plants like heat given without sun.

As to the comparative merits of growing and propagating plants in such a pit or house, and doing so by means of a dung-bed, that will depend greatly on the management. There is no means for securing rapid and healthy growth when heat can be safely applied like a sweet dung-bed; but a little carelessness as to the sweetness of the dung, shading, or air giving, will soon ruin all. In your pit with a little extra heat you can easily start your plants in spring; but if for propagating purposes you wanted as much heat as you would get from a dung-bed, you would have too much for such plants as *Petunias*, *Verbenas*, &c.

To combine both purposes you must make arrangements accordingly. Thus, suppose where your flue comes from the furnace you shut in a part or the whole of the front, and surrounded it by clinkers and covered it with a thin layer of rough

gravel, and then with sand, &c., you would have the means of getting what bottom heat you wanted for your cuttings, provided you could keep it there, and yet give enough of air to the other plants. Forming a small bed thus over the flue and covering with hand-lights would be as simple a plan as any; but if these lights are to be bought it would be expensive. We might hit on something simpler still. Suppose you wanted two or three propagating-pits, each 3 feet 6 inches long, and 2 feet wide, above your flue, we shall notice how to make one of these under different circumstances. In the above case, where the flue is surrounded with clinkers and covered with gravel and sand, we would make a bottomless box, the back board being 12 inches deep, the front 8 inches, the ends sloping accordingly. Set the box on the sand and have as many squares of glass—say two, as would go from back to front, a couple of tacks being placed for each in front to prevent them sliding. Such glass may be got in such sizes from $2\frac{1}{2}d.$ per foot. They will be quite close enough without any glazing or anything of the kind; and when there is too much condensed vapour on the under side, all you have to do is to turn the upper side downwards. A piece of paper or a piece of gauze will do for shading. The cuttings may be planted out, or, better still, inserted in small pots and moved out as soon as struck.

Another plan may just be mentioned. You have a ledge left for your flooring—well, have a two-and-a-half-inch wall or boards on the inner side of the flue of the same height, place a brick, &c., on the flue to bring it to the same level, and on these set boxes formed of zinc or sheet iron, for the bottom, and such boards, as above, for sides. Place sand on the iron, after making a few holes in it, to prevent too much moisture accumulating, and shut up all openings at the end of the flue enclosed, so that the heat given off shall rise into the iron instead of passing along and getting into the atmosphere of the house, and in either case you will have a nice hotbed for cuttings, and be able to examine them in all weathers. By the latter plan you may have the flue all exposed in winter, and your platform for plants in the usual way. In spring remove part of the platform next the furnace, bring in one of these iron-bottomed boxes, and place it right, and then furnish it with sand or tan for plunging pots in; and when you want more room take out another piece of your plant platform, and so on. By such means you can keep heat at your cuttings, and yet keep the rest of your plants cool enough by giving plenty of air; and if the general atmosphere from using the flue is apt to get too dry, syringe the stages, damp the floor, and keep vessels of water on the flue.

With such care any plants may be grown in such a little house, though our advice would be not to attempt too many kinds at first. In relation to the plants you mention we would say, Keep the *Geraniums* on boards, and at the end next the furnace, giving air in all suitable weather. *Verbenas* may go next, also on boards, and be carefully watered, and smoked if a green fly appears. *Petunias* next, and not so particular as to the boards being dry. *Cinerarias* next, and if standing on moss kept dampish they will thrive all the better. In sunny days in winter might be syringed about two o'clock, so as to be dry before night. *Calceolarias* should also stand damp and cool. Give all the air possible to them, and if much fire is used, sprinkle them on sunny days. They dislike fire heat altogether if it could be avoided.—R. FISH.]

FROST AND THE ASH-LEAVED KIDNEY POTATO.

I FIND that my Ash-leaved Kidneys care no more about the frost than the best cares about them. I planted them the first week in March—not wise for doing so, I admit, but it was a convenient time for me to do so, and the weather being fine, I embraced the opportunity of planting. Well, they came up strong, not one missed until the frost made its appearance, and after two or three hours' hot sun they seemed all to disappear. I thought it was all over with them, but they got over it much sooner than I expected. They were re-established again, and filled up the broken rows and showed their green tops; but, alas! not for long, the next slaughter was worse than the first. I looked out of my bedroom window on that terrible morning, the 10th of May I think it was. I saw the fields covered with a fine frost; in a few minutes I was in my garden, and the first thing that attracted my attention was a pile of water covered with ice. I took the top of that off in a piece. I thought of the

poor Ash-tops, and on looking at them they had disappeared once more, nearly every top being gone; but I am happy to inform my fellow cottagers, that they came again and brought their bottoms with them. I lifted on the 24th of July six roots as an average of the crop. The six roots weighed $11\frac{1}{2}$ lbs. Some of the Potatoes weighed over half a pound. This is an average of my crop of about ten poles.

Brother cottagers, never fear the frost will spoil your Ash-tops. This account is from an humble cottager's garden. I shall be very happy to hear from any fellow cottagers how they fared with their Ash-tops and the frost, or any remark that any gentleman's gardener may please to make on this frost-bitten crop.—AN HUMBLE COTTAGER.

AGATHÆA CŒLESTIS VARIEGATA.

MUCH fuss having been made about this plant, a few remarks may not be uninteresting.

It is by no means a new sport. I first saw it in the county Antrim, Ireland, in 1848, and again near Dublin in 1850. It was tried two years, and abandoned, as it was very liable to return to its original green foliage.

It sported again near York, and came into the hands of a nurseryman at that place, who sold it again to another nurseryman in London.

It also sported about the same time near Leeds, and some of the plants got to York. At the time of its being sold a good deal of useless noise was made about its being in other hands, and several places were visited to obtain the stock. In some places they were successful, in others they were not. By this means the Leeds sport was mixed with that of York.

Since then another sport has appeared in Ireland, which is very superior to the one now in general cultivation.

I am fully convinced that it is a plant that will not remain long in general use, as it is not to be depended on. On some soils it soon loses its variegation; on others it assumes a dingy, sickly yellow, anything but pleasing.

From what I know of the Irish sport I believe it will be the best of the lot; the leaves are broader, and the variegation very distinct, and it may prove useful for edging.—EBOR, *Barnate Hall*.

CULTURE OF THE GRAPE VINE.

(Continued from page 338.)

THE COILING SYSTEM.

SOME thirty years ago Mr. Mearns startled the Vine-growing world by asserting that a long branch might be cut off a Vine, inserted in a pot, and made to produce fruit the following season just the same as if it had remained on the parent stem. This he proved might be done by what he called the "coiling system;" and he certainly did achieve that effect. I was then gardener to Sir Robert Frankland, at Thirkleby Park, near Thirsk; and being always fond of experiments, and having some branches of the right sort to spare, I followed Mr. Mearns' instructions, and in a certain degree succeeded also. Though this plan soon fell into disrepute, partly, I fear, through the want of care on the part of those who tried it, yet I do think whoever has the means and the chance to try it might do so. The necessary materials are good, healthy, long shoots of the Vine, large pots to hold them, and bottom heat to plunge the pots in whilst the tops of the coils are in a cool atmosphere.

It often happens that Vines are from some cause or other obliged to be cut down. Taking it for granted that such is the case with one or more of our readers, and that he or they, instead of throwing the branches or stems away, should like to try the coil system, let him choose such as are flexible, with a good yearling shoot at the end; then prune off all the lower laterals, but not too close, leaving the leading shoot from 2 feet to 5 feet long in proportion to its strength. Then have ready as many pots 15 inches in diameter as there are shoots for the experiment. Drain well, covering the drainage with fresh-cut turf chopped in inch-square pieces, and upon them a small quantity of a compost of half-decayed turf three parts, and one part of hotbed dung well mixed, adding some pieces of charcoal and old lime rubble. After that place the lower end of the shoot down to this layer of soil, and begin to coil the shoot round the pot side, filling in the soil as the coiling proceeds, and coil away up to the top of the

pot, leaving out the length of the last year's shoot. Tie this to an upright stick, and then proceed with another branch, and so on till all are coiled and tied to the sticks.

In places where leaves are collected in quantities form them into a bed, and plunge the coiled shoots in their pots amongst the leaves. The heat of the leaves will cause roots to be emitted the whole length of the branches or stems that are buried in the pot. They may, indeed, be termed monster cuttings. The young shoots being in a low temperature will remain quiet. By thus obtaining roots first, the shoots will be ready to start with vigour whenever they are removed into a higher temperature. Place the pots when convenient into a house, beginning first with a temperature of about 45°, and very gently increase that heat as the shoots begin to develop foliage; afterwards treat them the same as to moisture, stopping the laterals, thinning, &c., as described before for Vines in pots. If all has been well and judiciously managed, these coiled Vine shoots will produce a fair crop of fruit the following year. If leaves to make a gentle hotbed for to start the branches into rooting are not at hand, the same effect may be attained by making a hotbed of stable litter, with a good deep bed of spent tanners' bark upon it. The only point to attend is not to make this dung-bed too strong, the bottom heat should not exceed 80°.

LIFTING OR TRANSPLANTING VINES.

It sometimes happens that Vines from a defective border are subject to shanking, shrivelling, mildew, and other grievous calamities; and yet the Vines are neither too old, nor, as far as foliage and wood are concerned, unhealthy; hence it is thought to be a pity to cast them away—neither is there any necessity for so doing. They may be taken up and transplanted as safely as any other deciduous tree, provided due care is taken to perform the operation carefully and at the right season of the year. The great object of lifting old Vines is to renew the border; and as that necessarily implies that the roots must be for a short time out of the soil, it is evident that the root action will be totally suspended: hence the tree itself should be at rest also. This, of course, can only be the case when the leaves are all fallen. As soon as that has taken place the operation may be commenced—it is the right time. Yet Vines may be lifted and the border renewed even when the young wood is only partially ripened. It has been done, and successfully too; but it required such an amount of care in shading, syringing, and watering, that by far the best plan is to defer the work till both roots and branches are in a state of rest, especially when it is remembered that no balls of earth can be preserved to the long rambling roots of a Vine.

The cultivator, then, having determined to transplant his Vines, and at the same time to renew and improve the border, let him, some time previous to commencing the operation, procure and get ready all the necessary materials for the renewal of the border. These materials consist in a sufficient quantity of brick-ends, stones, &c., for drainage; next, a large heap of turfy soil taken from a pasture, mixed with about one-eighth of good hotbed or farmyard dung, about the same quantity of leaf mould, and a free proportion of rough lime rubbish, and also a good sprinkling of roughly broken bones. Let all these materials for the soil of the border be thrown together and turned over frequently, to thoroughly incorporate the whole together. If the drains to carry off the superfluous water are defective, have bricks and tiles, procured also in good time, so that no delay may take place when the Vines are in a proper state to be removed. That time having arrived, commence with a sufficient number of hands the operation. In order that the roots may not be out of the earth too long, I would advise that only three or four should be lifted at once. Commence at one end, beginning at the side of the border furthest from the wall plate. Use three or five-grained forks only in removing the soil. Let it be wheeled away at once where it may be useful. Watch carefully for the roots, and as soon as the smallest are met with carefully disentangle them from the soil, tying them up and putting them out of the way till the soil is removed. A few small stakes, or even pruned branches, the two prongs facing upwards, will be useful to preserve the roots: these supports can be removed forwards as the work proceeds. When that section of the border is all removed and the roots safely preserved, I always had the bundles of roots wrapped in mats, and the mats occasionally sprinkled, to keep the roots moist and fresh. If this is neglected, and a drying wind or warm sun allowed to act upon the roots, they would soon dry up and

shrivel, especially the best roots. The youngest, and consequently those that would stand, should start into growth first.

The old soil being removed, and the Vine roots secured as much as possible from harm, then lose no time in first of all making the open drains perfect, and then wheeling in the rubble drainage. Of this useful and necessary material be liberal, especially if the situation is low and wet. That having been wheeled in, levelled and rolled, then let it be covered with a thin layer of turf, the grassy side downwards; this will prevent the finer parts of the compost falling in amongst and choking up the drainage. That being completed, then begin to wheel in the compost, commencing close up to the walls of the house, and laying on a sufficient thickness at once; by so doing there will be no necessity for the barrow wheel, or even the feet of the men ever to be put upon it—at least, until that part of the border is, now operating upon, filled up again. One point must not be forgotten, and that is, not to fill up the border to its full height—space must be left for the roots. It, however, must be remembered, also, that the soil will settle considerably; and, therefore, due allowance must be made for that settling. All these points having been attended to, then the border is ready for the roots of the Vines. Uncover them and spread them out regularly on the surface of the soil, treading on it as little as you possibly can. Finally, cover up the roots with the nicest part of your compost, about from 3 inches to 4 inches deep, and that finishes the operation so far as that number of Vines is concerned.

There the cultivator might rest for that year, and allow that portion of his vineyard that he had removed to recover before lifting any more of his Vines; but if those unoperated upon are unfruitful, or produce indifferent Grapes, it would be better to have the whole renewed at once. However, I leave that to his own judgment, because circumstances alter cases.

It is quite possible that some of the lifted Vines may not do well: should that happen, then let young Vines be planted the season following, and let them gradually replace the old ones. Indeed, it is my opinion, borne out by practice, that whenever a border is renewed and the old Vines transplanted in it, young Vines should invariably be planted also the same season. If the old ones do well it is easy enough to cut away the young ones; but if the lifted Vines do not promise to come round again, then a year is saved by having young Vines planted at once ready to take their place if necessary.

The after-management of lifted Vines is the same as for Vines that have no need of transplantation, with the exception that I would recommend a severer pruning the first year: in some instances the Vines might be shortened in considerably. This hard pruning would help to balance the loss of roots, and thus the roots retained, or, rather, preserved, would be able to send up nourishment enough for the reduced branches. Then, again, as the roots have all been brought up near to the surface a greater care is needful to protect them from severe frost; and another point should be attended to, and that is, not to force them into action too early in the year—in fact, they will start more vigorously if not forced at all. Let the root action be encouraged if you will by warmth to commence first, and the top action may be safely and better left to the natural heat of the spring sun.—T. APPELEY.

(To be continued.)

SWEET WILLIAMS NOT BLOOMING.

CAN you inform me of the cause of Sweet Williams not flowering? Last year I saw plants from Hunt's seed advertised in your publication. I obtained some, and this year they have grown till each clump (I planted them in threes), covers a space of from 1 foot to 18 inches, but not one has shown the least sign of throwing up a flower-stem. I took off some of the offsets of one or two and struck them, in the hope that that might induce the main stems to spindle; but no, and the plants are now a picture of vigour, but still without any signs of flowering. I am in just the same fix with Hydrangeas in a small greenhouse: they grow in the most luxuriant style, and have done so for three years, but never a bloom have I had from them there. A large plant of Oleander serves me the same trick, forming its buds but never expanding them.

My house is somewhat in the shade, and the plants do not get more than three hours' sun in the day, though I grow and flower well Pelargoniums, Fuchsias, Gladiolus, Cinerarias, &c. The soil in the case of the Sweet Williams is the ordinary garden soil,

very light, but enriched before planting with a spit of dung. The Hydrangeas and Oleanders are both in sound loam, dung, and a little leaf mould.—M. G. C.

[The summers are too short and your gardening is too good for your locality. Where the sun shines so seldom in London or near it, there are hundreds of plants which will never do much good in the way of flowering. Send your Hydrangeas and Oleanders to Covent Garden, and substitute Camellias for them. Never plant a Gladiolus there, but Pelargoniums, Fuchsias, Cinerarias, and herbaceous Calceolarias would be just at home in your place, provided you shorten sail. You must not pride yourself so much on the fine glossy looks of your plants; less pot room, less watering, poorer soil, and more drainage, are all you want to beat anything and everything before you.]

GOOSEBERRY CATERPILLARS.

I HAVE about three hundred Gooseberry and Currant trees, the whole of which were infested with the above pest, and about twelve trees completely stripped of their leaves before I discovered it. I at once sent for some lime, pounded it into dust, covered all the trees well with it, and especially the stems, and in less than two hours I had the gratification of seeing them drop in hundreds to the ground, and vainly again attempt to ascend the stem, but the lime dust blinded them, and they afterwards were found dead under the trees by thousands, and I have not been troubled with them since; and I have had the finest crop of Gooseberries and Red Currants I have ever had.

The trees were also infested with green fly, and the lime dust completely did for these, and now my trees are as clean and vigorous as they have ever been, and the crops the largest I have ever had; whereas, had I allowed these pests to have their own way I should not have had a Gooseberry or Currant fit to use, besides spoiling the trees.

All other remedies are worthless when compared with this; for it did not take an hour to throw the lime on them, and the cost was not 6d. I consider it an invaluable remedy.

In the autumn I intend taking the old soil from round each tree and mixing new earth with lime, so as to destroy any eggs still remaining in the earth. I feel confident the lime has improved the foliage of the trees wonderfully; and after they were all killed a good shower of rain washed all the lime off, thus again improving the trees.—L. HANMER, *Mayfield, Sale, Cheshire.*

THE NEW AND RARE VARIETIES OF BLECHNUM SPICANT.

Found in the Neighbourhood of Todmorden and some other Places. (Read before the Todmorden Botanical Society, by the President, Mr. A. STANSFIELD.)

WHEN a thing is common and obtrudes itself on our notice at almost every step, we are too apt to under-estimate its real merits, to overlook its beauties and peculiarities, and treat it with neglect. This has been the case with the *Blechnum spicant*. I confess that formerly I regarded it as one of the least beautiful and least interesting of all the British Filices; but, on examination it has risen greatly in my estimation, and to me it is now invested with beauty and interest equal to that of any other species. It was said of the celebrated M. Glauber, the chemist, that "he made it his business carefully to examine what everyone else threw away," and he found his account in it. So, if we carefully examine things that are common and neglected, we shall find our account in them, and be amply rewarded. We need not go to the Tropics nor the antipodes for novelties—they abound in the common and neglected things around us, if we only exercise our eyes and our limbs to discover them. All nature is rich in variety and resources, and persevering industry will always be rewarded.

During the summer and autumn of 1859, I and a few friends have examined some hundreds of thousands, if not millions, of plants of the common *Blechnum spicant*; out of these we have selected upwards of 200 forms, more or less abnormal. These are now in our hardy fernery, and I shall watch their behaviour, under cultivation, with intense interest. Many of them I have no doubt will revert to the normal form; but others may depart even more widely from it.

These varieties in many instances are but slight; yet, to a practised eye, they are readily distinguished from one another,

and from the common type of the species. They consist not merely in the varied terminations, length and breadth of frond, shape and arrangement of pinnae, but also in the varied character of the fruit, which, instead of being in continuous lines, is in some cases broken up into rounded dots, and in others into short lines or asplenoid forms: while others, again, bear semi-florescent fronds, and these last are rather of common occurrence.

In addition to the before-mentioned varieties, we have succeeded in finding about twenty-two highly rare and interesting forms, which there is every reason to believe will be permanent. They have, in most instances, been submitted to Mr. Moore, of Chelsea, author of "The Handbook of British Ferns," "Nature-printed Ferns," &c., who has examined and named them.

I will now enumerate these varieties as nearly as I can in the order in which they were found, giving the localities and a few other particulars respecting some of the new forms.

In June, 1859, I accompanied my kind friend, Mr. Holmes, your treasurer, on a short botanical sojourn to that fertile field of botanical research, North Wales. We devoted two days to the investigation of that portion of the Llanrwst valley which is nearly opposite to the town. Our object was partly to ascertain if another station for the *Asplenium septentrionale* could be found adjacent to that indicated by Mr. Newman, in 1854, all the plants of which are now eradicated, and also to discover what other rare plants inhabited the locality. It is almost needless to state that we were unsuccessful in finding another station for the *Asplenium*, but found out that there is another some two miles nearer to Bwth-y-coed. We explored several of the ranges of rocks, and met with many rare and interesting Phanerogamic and Cryptogamic plants. At the foot of the highest range of rocks, not far from the road over the mountains to Capel Curig, we came upon a most extraordinary and beautiful form of the *Blechnum spicant*. At first I supposed it to be a very beautiful form of the *B. strictum*; but, on examination, found it to differ considerably from that rare variety. Mr. Moore has since named it—

1. *BLECHNUM CONCINNUM*.—It was fortunately in fruit at the time, and a fine tufted plant. Fronds linear, very narrow, from 6 inches to 9 inches long, and from one-eighth to one-quarter of an inch wide; lobes nearly round, beautifully crenated on the edges; fertile fronds much longer than the barren ones, little more than a rachis, the lobes abbreviated into simple nodes, bearing the sori. It is new, extremely rare, quite unique, and beautiful.

About twenty yards further on, we came upon another extraordinary form:—

2. *BLECHNUM LANCEFOLIUM*.—Fronds lanceiform, somewhat less than the species, entire for about one-third their length; fertile fronds still more lanceiform, and depauperated above and below, and much shorter than in the species. Mr. Moore says it seems as if the plant was in course of formation. This form is well described in the folio copy of "Nature-printed Ferns," to which I refer the curious for further information. I have since met with another form of this plant, in Staups-elough, near Todmorden, somewhat more developed than the Welsh form.

On our second day in Llanrwst valley, we found two good plants of the true

3. *BLECHNUM STRICTUM*; but, as this beautiful plant is well described in the work before referred to, I need not describe it here. I have since found about a dozen plants of this rarity in the vale of Todmorden, about 100 yards from Greenhursthey. A single plant of the *Lomania stricta* was found, a few years ago, near Halifax, but was thought of so much value that it was next to impossible to get to see it. All the Fern growers were quite in a ferment respecting it. This plant, I believe, has since been lost. It was certainly extraordinary luck to find a dozen of this beautiful Fern all at once in the vale of Todmorden. It is extremely rare.

4. *BLECHNUM SUBSERIATUM*.—This rare and interesting variety I found last summer, in Catholcelough; and a friend of ours, Mr. Monkman, found it about three years ago, near Castle Howard, in Yorkshire. The two forms slightly differ from each other. We have grown it since that time, and it proves to be a permanent form. I am not aware that it has yet been described. It is more distinctly pinnate than any other variety I have yet seen, normal in size, pinnae mostly very much ascending, and serrate or subserrate on the inferior, and frequently auricled on the superior limb; fertile fronds, normal in size, with all the pinnae beautifully serrated. It is new, extremely rare, and very

interesting. In fruited in our fernery last season, and we have now plants from spores, which I am watching with much anxiety.

(To be continued.)

AMERICAN BLIGHT.

I HAVE a garden containing about fifty Apple trees which ten years ago were infested with the blight. All the old remedies had been tried without permanent effect. I asked myself the question, "What is the object to be attained?" My common sense replied, "Total annihilation." Then, I said, "Destruction is the thing," and a "hard scrubbing-brush the weapon." The insects do not like the process, and have disappeared. If the slightest blight is observed in the crevices of the gnarled bark, it is immediately well scrubbed off. My gardener uses No. 3, John Barshan's Patent, Kingston-upon-Thames, to be had at any bushmakers. With perseverance I expect the Larches might be cured in Mr. Godsall's nursery.—COMMON SENSE, Birmingham.

SYNONYMOUS FUCHSIAS.

JAMES ROLLINS surely does not for a moment suppose that these Fuchsias, marked "both the same" are really alike; yet the reading of his letter gives to me that idea. Either he has been victimised by some nurseryman, or he has not a florist's eye to note the differences in habit, style, form, and colour of the flowers. Duchess of Lancaster, the Old Duchess as it is familiarly called, is like none other. It is longer in the tube than Fairest of the Fair, longer in the footstalk, whiter and longer in the sepals, the corollas are as different as possible. Fairest of the Fair is the best formed; but the Duchess for colour—rosy violet it is called by florists, the same colour as Christine bedding Geranium, but a shade darker—infinity a more attractive flower, though the habit of growth of Fairest of the Fair is better, shorter jointed wood. Fairest of the Fair would be more attractive if the foliage was darker in colour, it is a little too glaucous. Prince of Prussia, James Rollins calls it. I suppose he means Princess of Prussia (Smithy), white corolla. Well, between this and Eclat there is a wide difference. Eclat seems to have some of the old globosa blood in it, short and dumpy in the tube and furrowed, with stiffer, better reflexed sepals, and a corolla more like Fascination, thick, waxy, creamy. Princess of Prussia is marked by the streaks of red down the corolla: certes, I think Countess of Burlington is before it. Guiding Star and Venus de Medici—ye powers! as much difference as between—whom shall we say?—Lady Macbeth and Titania, or Ariel. Venus is the most useful Fuchsia grown; but Guiding Star, "you bonnie gem," you are past description, except that Guiding Star is Venus purified from all dross—a miniature perfection in every sense. I am encroaching upon valuable space. Only two more, General Williams like Lord Macaulay? Not a bit. Lord Macaulay is more after British Sailor. General Williams has an extraordinarily long peduncle or footstalk, too long for the proper display of the flower: its proportions are long altogether—long tube, long but well-reflexed sepals, and long rather than wide corolla, more like a chimney-pot than an inverted bowl, which is the peculiar characteristic of Banks' Fuchsias. If James Rollins would like to compare his with the proper kinds, and if he has not the privilege of visiting a gentleman's or amateur's place where these are grown, I will post him flowers and leaves of all the kinds he mentions, if he will let me know.

How about Potatoes? We are putting Short's plan in operation. I will give you some notes when the result is known.—N. H. POWNALL, Holme Pierrepont, Nottingham.

THE ACTION OF THE POLLEN—CUSTARD VEGETABLE MARROW.

IN some of your late Numbers a discussion has taken place as to the means by which the pollen of plants fertilises the ovules. I will not occupy your space with entering into this subject, except to draw attention to Dr. Carpenter's work, called "The Microscope." At page 467, and previous page, any reader may find what is known on this subject; and, as he mentions at page 456, the pollen grains may be observed with a very moderate instrument to protrude their pollen tubes, as I myself have seen.

May I request you to suggest a reason for the following?—I have growing on a dung-bed some Custard Vegetable Marrows, they look healthy, but will not throw out side shoots, although nipped back. All their efforts are directed to making fruit, which is so thick that I have to cut off large numbers, and the others left will not come to perfection. On the same bed and against the wall are growing Tomatoes, which are fruiting well; and, also, two Cucumber-plants which are running and fruiting as they ought.—C. B.

[The reason why your Custard Vegetable Marrows do not run is, because you have got what is called the "bush" variety, which does not throw out long trailing shoots. It is quite true to character.]

POMOLOGICAL CLEANINGS.

STANWICK NECTARINE.—In this neighbourhood many persons complain of the Stanwick Nectarine. It loses most of its fruit in stoning, and what does not fall off generally cracks. It is quite clear it is unfit for open wall culture, and equally so for a cold orchard-house. Having been disappointed two years in my hopes of a good crop, the fruit falling when so large as to appear quite safe, I thought this season it was worth trying if a higher temperature would have a better effect on this variety. Having two plants beautifully set with fruit, I left one in the orchard-house, and placed the other in a hothouse where Cucumbers were in full fruit. The house appeared too damp and hot for a Nectarine, but the Stanwick was quite at home and has not lost one fruit. The tree left in the cold house as usual lost all its fruit, except three or four. I shall in future keep the Stanwick with the other kinds of Peaches and Nectarines till its fruit is set, and then treat it as a hothouse plant.—I. R. PEARSON, *Chilwell*.

THE CHASSELAS VIBERT GRAPE.—This sort obtained the first prize at the Crystal Palace Show, May 18 of this year. The Judges did not recognise its proper name, but awarded the prize to it as a Sweetwater Grape. Its berries were very large and of a pale amber; flavour excellent. Dr. S. Newington, or at least Mr. Powell, his gardener, was the recipient of the prize. This variety of the Sweetwater Grape was raised by the late M. Vibert, of Angers, some ten or more years since, and no new variety of this class is of greater excellence. Its foliage is deeply incised, very hairy on its under surface, and thick and substantial, so as to be very striking. Chasselas Duhamel is its twin brother, and was raised from the same batch of seeds. It differs but little from C. Vibert, and is equally good.—T. R.

OSCAR STRAWBERRY.—Having grown Oscar and some dozen other kinds of Strawberries this year under precisely the same treatment, I can assure your correspondent that Oscar is a good, healthy, though not a very strong grower, and is also a fine, well-coloured Strawberry, but I do not think it is by any means a high-flavoured fruit—indeed I think it is in this respect inferior. I am informed, however, by the gardener of a friend of mine, who had a few plants from my bed for forcing, that it is a first-rate variety for that purpose, as, indeed, I should have imagined from its fine colour and solid flesh. Carolina superba has grown very well with me, and is a handsome, very fine-flavoured fruit, but it occasionally, like the British Queen, fails to ripen at the point. Notwithstanding this, however, it is so good a Strawberry that I intend to add largely to my stock of plants. Sir Charles Napier, said to be tender, wintered here (one of the coldest parts of Essex) well; I did not lose a plant, and the vigour and size of the plants exceed all the other kinds near them. It is a bright scarlet, fine-shaped Strawberry, but acid and of an indifferent flavour. Elbert Pine, a very good-flavoured fruit, and a most vigorous grower, has produced with me an enormous crop, exceeding anything I ever saw. I consider this one of the best Strawberries (it is rather late) that I have grown. Elton Pine, too, has done well, producing plenty of fine, dark crimson, well-shaped fruit, but it is too acid. The queen of Strawberries, I think, is Crimson Queen. I am very much pleased with this most beautiful fruit. It is pretty early, a very heavy cropper, and produces enormous dark crimson berries red throughout, and continues in bearing a very long time. The flavour is in my opinion little, if any, inferior to British Queen; the only drawback is that the plants seem rather tender, as mine certainly suffered from the late winter. Rivers' Eliza is a wonderfully strong and robust variety, and the fruit is of an excellent flavour; but my plants being

yearlings I cannot yet speak as to its cropping qualities. Wonderful is a very distinct-shaped and very fine-flavoured Strawberry; but I must wait for a year before I speak of its productiveness. I have, too, Victoria, Prince of Wales, Eleanor, Sir Harry, and the older kinds—Keens' Seedling and Black Prince. Eleanor I like, because the fruit is so handsome; but I do not think the flavour is above the average. Sir Harry is a pretty and distinct-shaped fruit, and I understand forces well; but I think, take Keens' Seedling for all points, it will be a long time before it is superseded by any kind at present before the public. I have had an enormous crop of these, and the flavour, though not A1, is not surpassed by many kinds. Black Prince is tolerable when perfectly ripe, but I do not think it is worth growing, considering that it comes only a few days before much better kinds. On the whole I think Crimson Queen is the very best variety for out-door purposes; and I know it is the opinion of a good practical man that for forcing no Strawberries are superior, if equal, to Keens' Seedling, Oscar, and Sir Harry—the first being also the best. Goliath under an east wall is the latest Strawberry with me; the flavour is inferior. I purpose adding some half-dozen kinds to my stock this autumn, upon which and the kinds not yet fully proved I will, with your permission, report at some future time should I have the opportunity.—P.

NEW MODE OF GRAFTING.—The French are practising a new method of grafting. It can be performed at any season of the year when sound, mature buds can be had, whether the sap is in a flowing state or not. It is performed by removing a small piece of bark and wood, leaving a smooth and flat surface, to which a similar piece, containing the bud, which is to form the future tree, is fitted, which is sealed over immediately with collodion. This forms a strong, impervious cuticle, which secures a free circulation of sap on the approach of warm weather, and a perfect union of the parts.

APPLES AS FOOD.—There is scarcely an article of vegetable food more widely useful and more universally loved than the Apple. Why every farmer in the nation has not an Apple orchard, where the tree will grow at all, is one of the mysteries. Let every family lay in from two to ten or more barrels, and it will be to them the most economical investment in the whole range of culinaries. A raw, mellow Apple is digested in an hour and a half; while boiled Cabbage requires five hours. The most healthful dessert which can be placed on the table is a baked Apple. If taken freely at breakfast, with coarse bread and butter, without meat or flesh of any kind, it has an admirable effect on the general system, often removing constipation, correcting acidities, and cooling off febrile conditions more effectually than the most approved medicines. If families could be induced to substitute the Apple—sound, ripe and luscious—for the pies, candies, and other sweetmeats with which their children are too often indiscreetly stuffed, there would be a diminution in the sum total of doctors' bills in a single year sufficient to lay in a stock of this delicious fruit for a whole season's use.—Dr. HALL.

CHOICE FUCHSIAS.

THE great sameness in the Fuchsias exhibited during the present season is very evident to me, if not to you and the readers of your gardening organ—THE JOURNAL OF HORTICULTURE. We want greater variety. What say you to the following twelve?—Lord Macaulay, Fair Oriana, Marquis of Bath, Madame Cornélie, Count Cavour, Schiller, Prince of Orange, Princess Alice, La Crinoline, Flower of France, Senator, Dr. Livingstone.

These I selected from seventy varieties growing at Mr. Henderson's Nursery, Pine Apple Place. Can there be any improvement on my selection?—DEVONIANA.

[The selection is admirable.]

MECHANICS AND MATHEMATICS APPLIED TO GARDENING.

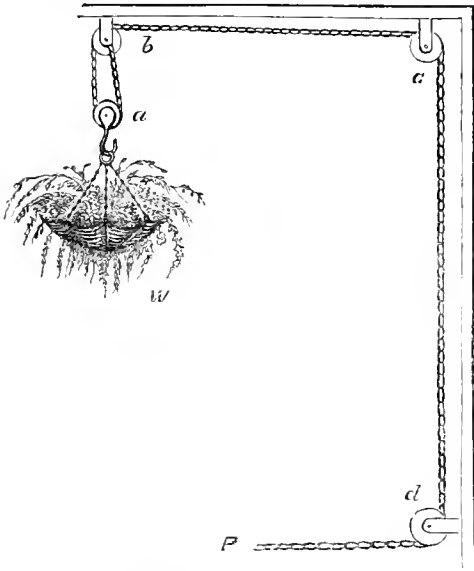
(Continued from page 337.)

THE PULLEY.

THIS mechanical power is a solid wheel, called a *shieve*, turning on an axis passing through it and to which it is not fixed, but the ends of the axis are fast in a framework or *block*. There is a groove in the entire circumference of the wheel for the purpose

of retaining a cord, by means of which the power acts upon the weight, the moving of which has to be facilitated by means of the pulley.

The readiness with which the wheel turns round its axis gives the rope passing over part of its circumference a leverage equal to half the diameter of the wheel. It is true that there is an equal leverage opposed to it on the side of the weight, but the ease with which the wheel turns reduces greatly the friction upon the wheel's circumference. It is in this reduction of the friction that the value of the pulley consists. It also enables men to apply their power at a great distance from the weight to be overcome or moved. For example, men can stand on the ground and hoist, by means of the pulley, a large basket of plants to an elevation far out of their reach, as is done towards the roof of many conservatories, and by which means they can be readily lowered for the purpose of watering, and be raised again when needed. Four pulleys, three fixed and one moveable, must be employed for this purpose, arranged in this form.



These four may serve as an illustration of what is usually called "a system of pulleys;" adopted on account of the fact that every bend of the rope, if over a pulley, diminishes by one-half the pressure on the previous pulley of the weight to be moved. If only the pulleys *a* *b* were employed, and the basket or weight, *W*, was 120 lbs., then the power to balance it at *P* must be 60 lbs. If the pulleys *a*, *b*, *c* were used, then the balancing power at *P* would be 30 lbs.; and when pulleys *a*, *b*, *c*, *d* are all used, the balancing power at *P* would be 15 lbs.

To effect this, it is indispensably necessary that one end of the rope be attached to the block of the pulley *b*, and not to the basket or weight, *W*. Otherwise, although each bend of the rope would bear an equal strain, it must, from the absence of a divided bearing, be everywhere subject to the pressure of 120 lbs.; consequently it would require a power or resistance at *P* equal to 120 lbs. to balance the basket or weight, and no advantage would be gained by using more than one pulley.

In the above statement no allowance is made for the weight of the pulleys themselves, nor for the friction of the rope on the pulleys. In practice, however, it will be found nearly one-third must be allowed for friction alone: therefore the power to raise the weight must be at the least one-third greater than we have stated—that is, to move the basket of 120 lbs. there must be a power of 20 lbs. at *P*. All pulleys, says Captain Williamson, have considerable friction. 1stly, because the diameters of their axles bear a very considerable proportion to their own diameters (therefore the larger in diameter the pulley and the smaller in diameter the axle, consistent with the requisite strength, the better). 2ndly, because, owing to their usual narrowness and to the great pressure to which they are subjected and whereby they are speedily worn and loosened, their sides are apt to chafe against the blocks. 3rdly, the rope passing upon their circumferences invariably possesses some stiffness, whereby the motion

varies in its speed—an irregularity always injurious to the machine, and diminishing considerably its force.

It seems scarcely necessary to observe, that exactly as much as the rope is pulled in from *d* to *P* is it shortened between *a* and *b*: therefore it is easy to regulate the distance of the basket from the roof of the conservatory.

If the rope passed over the pulley *b* only, and its end was fastened to the basket, the power, as we have already observed, to balance it must be equal to its weight—that is, 120 lbs., and the one would descend as fast as the other ascended; yet, with such a pulley a man may raise himself to the top of the conservatory merely by his own weight. Suppose a rope is passed over the pulley, and the man ties one end of it round his body and takes the other end in his hands, he has the power of throwing more of his weight on the end in his hands than is on the end round his body: consequently as often and as long as he does this his body rises from the ground.

(To be continued.)

FRUIT AND FLOWER GATHERERS.

ANY contrivance that facilitates the operations of gardening is always acceptable. Among the novelties in this way we have had Fruit and Flower Gatherers brought to our notice by Mr. Riddle, of Cheapside, which will be found very useful for the purpose for which they are intended. To shake fruit from the tree is to ruin it; to run about seeking a ladder is often both inconvenient and unsuccessful; but with the fruit-gatherer in your hand, of which the annexed *fig. 1* is a representation, you



Fig. 1.



Fig. 2.



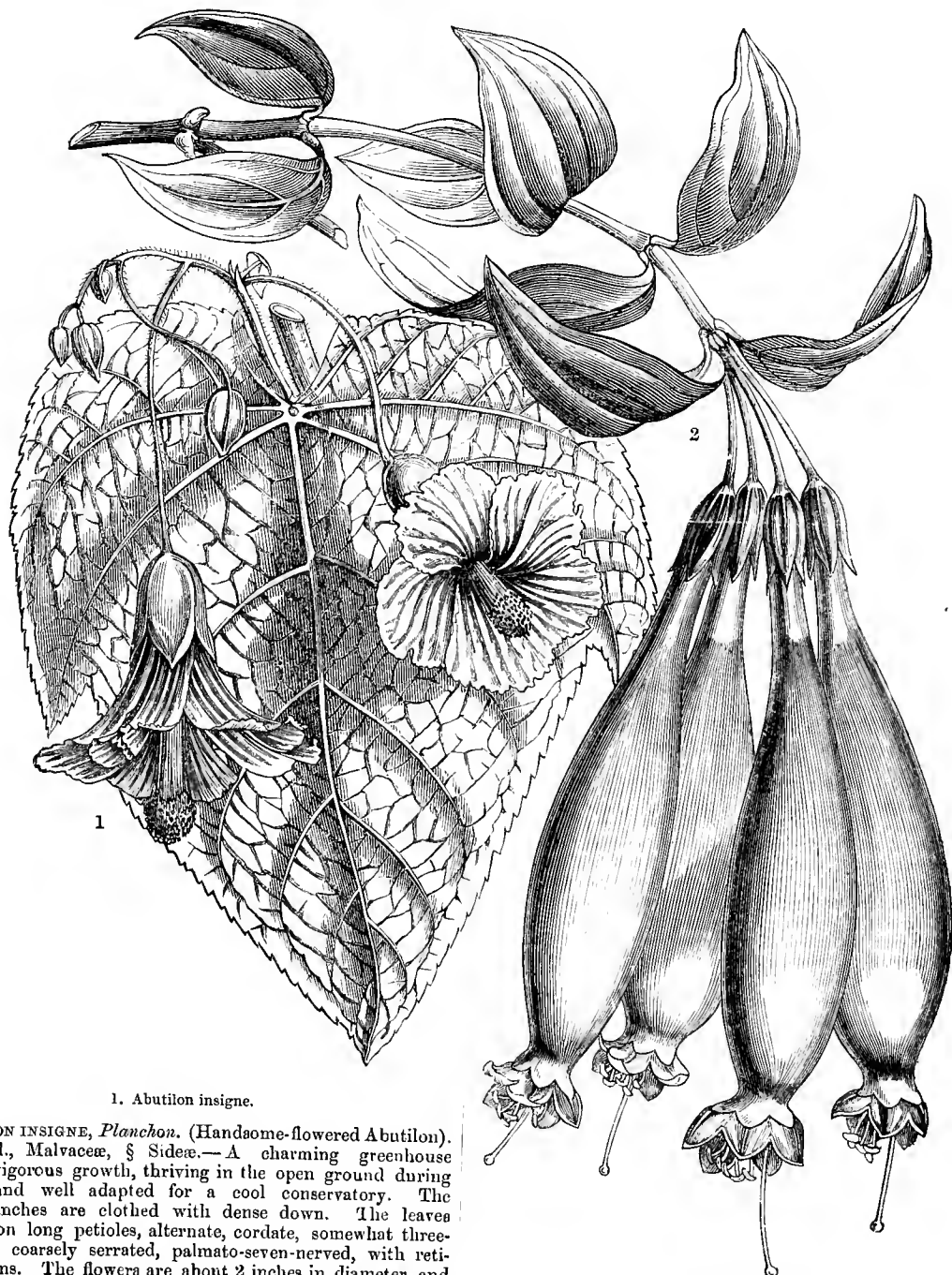
Fig. 3.



Fig. 4.

need never be at a loss. The gardener may walk about with his gatherer in his hand as a gentleman walks over his field with his spud, using it when occasion requires. The contrivance is an excellent one. It consists of two disks of Indianrubber, which is so elastic as not to press injuriously on the ripest Peach. Communicating with these disks there is a wire, which is let into the six-feet-long handle, and which is connected with a pull at the end. By merely pulling this wire the disks are made to close upon the fruit, and it is then easily separated from the tree. In *fig. 2* we have another form of fruit-gatherer, and which is more applicable to Grape-gathering—a fruit with long stalks. It consists of a pair of scissors instead of disks. These are worked in the same way as the disks, and cut the fruit-stalk; the fruit then falls into a small bag or net, which is formed round a hoop or ring. *Fig. 3* is a pruner, and is well adapted for the summer pruning of pyramid fruit trees—indeed we quite feel that such an instrument as this was wanted now that pyramids are grown in every garden. It consists of a pair of scissors, also mounted on a long rod, and worked by the same mechanism as the other implements. *Fig. 4* is a flower-gatherer, and is so contrived that it cuts and holds firmly the article it cuts. For gathering flowers from tall shrubs, or from the centre of borders on which it would be next to sacrilege to tread, it is well adapted. The rod of this is of brass, and is a very neat instrument. All the instruments are very useful to every gardener, but particularly to the amateur.

ABUTILON INSIGNE AND LISIANTHUS PRINCEPS.

1. *Abutilon insigne*.

ABUTILON INSIGNE, *Planchon*. (Handsome-flowered *Abutilon*).—Nat. ord., Malvaceæ, § Sidae.—A charming greenhouse shrub of vigorous growth, thriving in the open ground during summer, and well adapted for a cool conservatory. The young branches are clothed with dense down. The leaves are large, on long petioles, alternate, cordate, somewhat three-lobed, and coarsely serrated, palmato-seven-nerved, with reticulated veins. The flowers are about 2 inches in diameter, and grow in axillary racemes of three to seven flowers; the calyx is campanulate, with triangular acute lobes; the corolla consists of five obovate cuneate petals, crisped, and plicate with erose margins; they are of a lively rose colour, with deeper coloured veins. From New Grenada: mountain regions. Introduced to continental gardens by M. Linden, through his collectors, MM. Schlim and Funck.

It has the advantage of bearing its lovely flowers when the plant is not more than 1 foot or 2 feet high, and these flowers continue some time in perfection, appearing with us in January. The ground-colour of the large petals is white, but that is almost entirely obliterated by the rich carmine veining

2. *Lisianthus princeps*.

or reticulation, both without and within; but brightest on the upper side.

LISIANTHUS PRINCEPS, *Lindley*. (Prince of *Lisianthus*).—Nat. ord., Gentianaceæ, § Gentianeæ.—A greenhouse shrub of great beauty. It grows naturally compact, 2 feet or 3 feet high, with dichotomous sub-four-angled branches, and is smooth in every part. The leaves are opposite, lanceolate-oblong, acuminate, with two pair of lateral nerves, and a very short footstalk. The flowers grow at the tips of the branches in small sub-umbellate clusters [singly from the axils of the leaves, *Lindley*]. They are

nodding, with a tube 5 inches long, swollen out to 1 inch in width about half way up, again contracted at the throat, and terminating in a cup-shaped [spreading, *Lindley*] limb, broken up into five ovate obtuse segments, which are green except at the base, which is orange-coloured, the tube being represented as orange-red. From their size and colour they must be very showy. From Colombia, mountains of Pamplona, at from 10,000 feet to 11,000 feet altitude. Introduced to continental gardens by M. Linden, through his collector, M. Schlim. Flowers in? M. Van Houtte observes, that "a greenhouse is the most suitable place for it. The plants may be grown in a free loamy soil, the pots being well drained; for, in the early part of the growing season, they must be freely supplied with water. They are easily propagated by cuttings placed under a hand-glass in the usual manner, and may also be raised freely from seeds sown on the surface of the soil in pots or pans, and kept watered with a fine rose; as they grow they may be pricked singly into small pots, and placed in a frame, or the shelf of a greenhouse." Though recommended to be grown in a greenhouse, they require complete protection from a low temperature in winter.

CHRYSANTHEMUM BLOOMING EARLY.

A FRIEND of mine in this neighbourhood has had a plant of *Chrysanthemum* in flower for the last month: it is a large clear yellow, and is, I think, "Annie Salter;" but the tally has been lost.

On the 27th ultimo I saw a very fine bloom cut from the plant, which latter is a small starred thing in a four-inch pot, in which it has grown for the last two years, having been potted by myself and given to my friend in June, 1859; since when it has been quite neglected, and has stood, I believe, most, if not all, the two years on a shelf in a small unheated greenhouse, principally used for protecting Tea Roses, and in this situation it has flowered.

Is it not unusual to have a *Chrysanthemum* in flower so very early?—E. C. [It is early.]

THE CAPE OF GOOD HOPE VINEYARDS AND THE VINE DISEASE.

(Official Report.)

(Continued from page 341.)

ARRIVED at Somerset (West). The small vineyards about here are all more or less affected. Lime in a dry state, whether from its cheapness being easily procured, or other causes, appears a favourite article for applying to the diseased Vines, but no one is prepared to say it has been successful in removing or arresting the progress of the disease. Sulphur as the proper cure is well known. Advised its immediate use instead of "experimenting" with the lime.

December 7th.—Proceeded to the farm of Mr. Henry Theunissen, Field-cornet, 130,000 Vines. Disease pretty general, attacking all kinds indiscriminately. The Steen Grape at this place is not so severely affected as in most other vineyards. Lachryma Christi crop entirely destroyed. Lime both in a dry and liquid form applied; no good results from the application. Diseased last year. Mr. Theunissen begins on Monday to sulphur vigorously.

Mr. P. Myburg, Hottentots' Holland, about 160,000 Vines. Disease general, quite rampant indeed on some of the Vines. Steen, as in nearly all other places, suffers most intensely. Disease prevalent here last year. No remedy applied then or now, except dry lime, which is being applied very liberally. Took leave to assure Mr. Myburg, jun., it was a waste of time and means to dust the Vines with dry lime to remove or stop the spread of the disease. A patch of Vines which were diseased last year, are almost "ate up" this year, and their condition can be detected at a distance of 100 yards by the naked eye. The soil is a good loam, the growth of the Vines luxuriant, and the vineyard densely sheltered from all quarters. Of all the places visited, we have seen none so well sheltered, and none where the disease is in so advanced and rampant a state.

Mr. D. Buisine about 14,000 Vines. Disease prevalent on the Steen Grape, and a few of the other sorts grown. There is a wide contrast between the state of the disease here and at the preceding place. This vineyard is very densely sheltered also, but the Vines generally are clean and healthy; the Green Grape,

in particular, appears to be swelling beyond that size and period most liable to the attacks of the disease. No disease last year. No remedy, except a little dry lime as an experiment, applied as yet. Intends sulphuring, immediately, those affected.

Mr. Theunissen, J.P., Hottentots' Holland, 200,000 Vines of all sorts. Steen Grape diseased, but not severely. No remedy applied, intends sulphuring. Soil stiff. Situation nearly flat, but open and well ventilated. Irrigation, Mr. Theunissen believes, stops the progress of the disease—a belief shared both by those who have tried, as well as by many who are about to try, its effects.

Mr. Daniel Malan, Hottentots' Holland, 10,000 Vines. Disease attacked Steen, Muscadell, and Green Grapes; the first-named virulently. No remedy applied as yet except irrigation, which it is believed has stopped the spread of disease throughout the vineyard, some parts of which we find quite flooded with water. All this water to Vines, swelling their fruit fast, will not increase the quantity of saccharine matter in the berries, on which the richness of wines depends.

Mr. J. D. Malan, Harmony, 80,000 Vines. Steen Grape intensely affected—fruit, leaves, and shoots. Pontac, Green Grape, and others, more or less affected. Is using lime, dry; recommended the immediate use of flowers of sulphur.

Mr. Morkel, sen., 160,000 Vines. The disease exists here, but not general, nor in an advanced state. Steen, Currant, Muscadell, and Green Grape are the sorts affected. No remedy applied as yet. The sulphur cure is to be applied at once. Soil a stiff loam; situation much sheltered by trees and rising ground.

Mr. Morkel, jun., 100,000 Vines, mostly Green Grape. The Steen is most severely attacked. Lime and sulphur have both been used here vigorously. Mr. Morkel is of opinion the Vines sulphured show appearances of improvement, but the time elapsed since the application has not been long enough to determine. The proprietor is energetic and intelligent on all matters connected with the cultivation of the Vine and the disease now so prevalent, and will, there is no doubt, do justice to all experiments he may make. The several farms we cannot visit in this neighbourhood are all affected more or less with the scourge, we are reliably informed. The proprietors are well aware of the proper remedy, but are using lime instead, which is a great waste of means and time.

(To be continued.)

SPORT IN LOBELIAS.

I HAVE for several years cultivated a blue *Lobelia* which I have used regularly for bedding, keeping it in the winter in my greenhouse. This year I find, after planting a bed of it, that, instead of the flowers being a bright blue as formerly, most of the plants bear flowers of a dirty white colour, and which has caused me to root them out. I am at a loss to account for the change in the colour, and shall be glad to know if you can explain the cause.—A REGULAR SUBSCRIBER.

[The blue *Lobelia* is tired of your soil, then it varies and runs out, as we say. That is exactly the reason why yours have gone so bad. Corn, Potatoes, Turnips, Peas, Beans, and everything we sow and reap, pet and precious, require their seeds or the soil to be often changed for them to keep them up to the mark. Fresh seeds will give true blue *Lobelias* again to a certainty, if the seeds be true *speciosa*, the best blue kind.]

CAMELLIA-HOUSE.

A Constant Subscriber will be very much obliged for a little advice upon the following matter.

It is my wish to erect a house for Camellias. It is not required to be a large one, nor is it intended to incur great expense. The object is to grow Camellias in the ground, but not to exceed a certain height, no plant to be out of standing reach. To be as concise as possible I will put the following questions:—What is the best aspect? What is the best arrangement for such a house, so that each plant shall be separate and easily accessible? Is there any objection to galvanised iron for Camellias? and is it any advantage to have the glass tinted green? Will a fixed roof (not, of course, without some opening) but avoiding the old system of rafters, afford sufficient ventilation?

[Any aspect will suit a Camellia; perhaps the north-east and

north-west, and south-east and south-west, would be best, but any aspect will do.

To combine comfort, efficiency, and economy, a span-roofed house would suit you best—say 12 feet wide, 6 feet in front on both sides, half of that glass, and the ridge 9 feet. You might then have a shelf all round 18 inches wide, which would be 3 feet, a pathway all round 2½ feet, which would be 5 feet; being a bed 4 feet wide in the centre in which to plant the Camellias, from which you could easily examine and gather from either pathway, by placing not more than one foot on the bed.

Galvanised iron will do very well; but you will not beat a fixed roof by having sash-bar rafters 16 inches apart, 3 inches by 1½ inch. We would not advocate tinted green glass—we do not practically know enough of it. By having a double ridge-board you can have nine-inch ventilators between them, and the side-lights should be made to open—that will give air enough.]

CLEMATIS NOT BLOOMING.

I HAVE a Clematis which has been planted seven years, and makes considerable growth every year, but I have never seen a flower yet. What can I do to it to make it flower? It is trained over an arch that spans the gravel walk running due south, and fully exposed to the sun.—C. E. LUCAS.

[There are three if not four sections of the genus Clematis, and the plants or most of them in one section require a different mode of treatment under such difficulties as yours, from those in another section: therefore, not knowing the kind, we cannot say the right treatment for it; but if it were ours, and it did not flower the third or fourth season, we would root it out entirely and plant another. There is something radically wrong, for no plants are more free to bloom than most of the Clematises. Why not plant Clematis montana, which runs 20 feet to 30 feet in one season when the roots are well established, and every joint of it blooms white as snow in May, in wreaths 10 feet to 20 feet in length, and no place in Great Britain or Ireland is too hot or too cold for it?]

CULTURE OF THE GRAPE IN POTS.

THE art of growing and fruiting the Grape Vine in pots forms one of the most interesting, elegant, and profitable branches of modern agriculture. When well understood, the culture of the Vine in this way will be found to be as simple and as easy as in the border, and even better suited to the circumstances and wants of numerous amateurs and gardeners.

Anybody who has a small forcing-house may produce the best Grapes in pots in perfection, without the costly preparations of the vinery, and with very little trouble. If the Grape when fruited is an elegant object in the vinery, it is much more so in the pot; and, when managed with skill, the mass of splendid fruit which a single cane less than 3 feet in height is capable of producing, cannot fail to excite the admiration of every beholder.

A great many persons who have small greenhouses would like to raise Grapes; to such pot culture offers peculiar advantages. The work of growing the Vines can be easily and cheaply done by themselves or their gardeners, and the plants got ready in any number (as will be hereafter described) and brought forward, say a dozen or two at a time, without interfering with the other plants, and fruited as soon as in a regular hothouse, and in great abundance and perfection.

For early forcing the pot Vine is exceedingly convenient. The owner of a vinery may desire a few early Grapes, but it may be impossible or undesirable to heat the border early in the season, and go into general forcing. In such cases, with the control easily exercised over the pot Vines, we may start them in the hothouse in the month of March, and after the fruit is set ripen in the cold vinery, and cut the fruit in June or July.

There is great economy of space in pot culture, which commends it especially to persons who have hothouses of limited extent. Five hundred square feet of glass will ripen about 250 lbs. of Grapes in a common house with border culture. In pots, 500 lbs., at least, may be obtained under the same surface of glass, and the period of ripening may be more easily hastened or retarded; thus in a single house greatly extending the fruit season.

Grapes in pots may be for three or four months upon the Vines after they are ripened, by removing the pots to a cool, dry, airy room—even in the parlour—thus presenting all the merits of a beautiful house plant as an object of interest, as well as a delicious source of gratification to the palate. West's St. Peter's, Muscat, and several other late Grapes, ripened in pots on the 1st of October, will keep on the Vines in a cool, dry, airy room, till the 1st of February or March.

As an ornament to the dinner table, or for decorating a room for evening parties, there is no production of the hothouse more truly magnificent in all respects than a pot Vine fully and properly developed, bearing six or seven bunches of the finest Grapes as they may be grown by proper dwarf culture, such as we shall describe in this work.

The early fruiting of dwarf pot Vines is another advantage greatly in their favour, as compared with common Vines. Vines are so easily produced in pots, that it is a matter of little consideration if you fruit them early, at the expense of the existence of the Vine, while in the border you would be more careful to create a strong cane before permitting it to fruit. Vines may be struck from the eye, and forced into perfect and abundant fruiting in eighteen months. You may strike Vines from the eye in March, and fruit them in pots the second season, moderately, without serious injury to them.

Properly and moderately fruited, the pot Vine is not destroyed, as many persons suppose, in one or two seasons, but may be shifted from small to larger pots, root-pruned, and again placed in smaller pots, for years; the proper nutriment for growing wood and perfecting fruit may be added to the soil at each change of pots, and given in solution while bearing. A much greater variety of Grapes may be grown together in pots in the same house than by the common method in borders. When the roots of Vines run together, it is well known that the strong-growing sorts are apt to injure and drive out the weaker kinds—as for instance, the strong-growing White Niece, or Syrian, planted in a border by the side of the Black Prince, or the Dutch Sweetwater, will so seriously check the growth of the latter, that perfect fruiting is almost impossible. With Vines in pots no such accident can happen. Each plant is perfectly independent of every other, and they may be placed side by side without injury.

It will be here understood that we are speaking of true and exclusive pot and Vine culture—not that partial or mixed system which permits the roots of the Vine to extend from the pots into a border.

In pot culture, Grapes, which it is impossible to ripen in the border without cracking, may be produced in the utmost perfection. The Chasselas Musqué is a Grape of this description. The cracking is due to excess of moisture in the border, which it is sometimes difficult to prevent. But in the pot we have entire control over the moisture, and hence perfect Grapes can be produced.

A question which almost every man will ask, in respect to pot Vine culture, is this: "Will it pay?" We answer, most unhesitatingly, it will. We know it will pay. We grant that pot Vines require more care and attention than Vines in borders; but they may be employed by many persons who have only small hothouses, without interfering with other plants, and without any great additional expense; large crops of early Grapes (and late ones too), may be obtained where none could otherwise be grown; and the return, for the space occupied and care required, in pecuniary profit and gratification, will be found highly satisfactory.

Growing foreign Grapes in hothouses is generally considered a sort of rich man's luxury. The pot Vine may, on the contrary, be called the poor man's luxury. The Grape in borders is generally grown on a man's own estate. The pot Vine may be called the tenant's Grape. In pots, the Grape may be grown in any sort of hothouse, even in a three-light box, by the tenant of the humblest cottage; and when he is suddenly called upon, by any circumstance, to remove, he may take his Vine with him, at any season of the year, and continue its culture at his pleasure.

There are many persons who have much taste for horticultural pursuits, and for the culture of Grapes in particular, not restricted in means, who yet do not find it desirable to erect permanent graperies; to such, as well as the really poor man, the pot Vine is a desirable acquisition. In city yards, where a greenhouse only 10 feet square can be erected, there the Grape may be grown and fruited in pots as well as in the most costly and extensive structures.

With these advantages of pot Vine culture before us, we think we may safely say, that when the art of growing and fruiting the Grape in this way becomes fully and generally known, it will be exceedingly popular. It is an art which ladies may learn and exercise under circumstances well suited to their tastes, and even be made a source of profit as well as pleasure, by many ladies who would not choose to engage in any common gainful occupation. To the man of wealth who has extensive hothouses, it will add to his Vines a convenient method of early forcing, and an elegant novelty for the parlour or the supper party; and to the person of more limited means it affords an opportunity to enjoy the pleasure of growing the richest Grapes in the highest perfection at small expense.—(*Boston Cultivator*.)

WORK FOR THE WEEK.

KITCHEN GARDEN.

VACANT ground, or that which can be cleared of early crops, may still be planted with winter stuff, first giving it a good dressing of manure, and a good deep digging. Stir the surface of the soil among growing crops; this has a highly beneficial effect upon them. *Broccoli*, any that are now planted out, to have their roots dipped in puddle, composed of soot, earth, and water, and immediately after planting to be again watered. The Cape and Grange's intended for use in the autumn, to be also watered. *Carrots*, a few of the Early Horn may now be sown to stand the winter, but another sowing should also be made towards the latter part of the month. *Celery*, abundance of water to be given to all the crops. Continue to plant out, taking up the plants with as much soil about their roots as possible. *Endive*, a large plantation to be made, for what is now planted will constitute the great bulk of the autumn and midwinter supply. Elevated beds 4 feet in width, and with a bold curvature, to be made in an open and dry situation; such beds to be a foot or more above the level of the ground, and to be made very rich. These beds to be hooped over about the beginning of November, that they may be readily covered with mats when frosts set in. *Lettuce*, make a sowing of Cos and Cabbage for late use. *Onions*, the ripening crop to be bent down by hand, and, when pulled, the ground to be planted with Winter Greens. *Spinach*, the crop for the winter's supply to be sown from the 7th to the 15th of the month, according to situation, and the beds to be prepared as advised for Endive. *Turnips*, another sowing may be made. If the weather is dry, water the ground after the seed is sown, and cover with mats.

FLOWER GARDEN.

As this is a favourable time for seeing the arrangement of the colour in the beds and borders, and for noticing any defects to be corrected another season, it is advisable for that purpose to make a plan of the garden, and to write the names of the plants on the beds and borders according to the improved arrangement decided upon. Such a plan will be of great service in showing at any time what quantity of each kind of plant has to be propagated, and unless some method of this kind is adopted, it is very probable to find at bedding-out time that there is a scarcity of some things and too many of others; whereas those who have their plans to refer to, can tell at once the exact number required of everything, and by such means save themselves from the anxiety and confusion that too frequently occur at planting-out time. Dahlias are growing very rapidly, and will require to be gone over frequently to keep the side branches securely tied in. Hollyhocks to be also securely tied to their stakes. Continue to remove dead flowers from Roses, and give plenty of manure water to the autumn-blooming varieties. Finish budding Roses if not already done, and also get border Carnations, Picotees, and Cloves, layered without further loss of time. Attend to the gathering and sowing of choice perennial and biennial seeds; these should be watched daily, and gathered as they ripen.

FRUIT GARDEN.

Dig down exhausted plantations of Strawberries, and get the ground planted with winter stuff if you have not already planted sufficient. Keep the shoots of Apricots, Plums, &c., securely tacked to the wall, and afford the fruit as much exposure as possible without injury to the leaves.

STOVE.

Such of the plants here as are intended for the decoration of the conservatory in autumn and early winter to be carefully looked over, shifting such as are likely to want more pot room

without delay, so as to get the pots well filled with roots before their blooming season. It is also advisable to keep the shoots tied out rather thinly, and to expose the plants to as much sunshine as they will bear without scorching their foliage to promote stocky growth. Maintain a moist growing atmosphere, and use the syringe freely upon any plant infested with green fly or red spider. The growing season for Orchids is fast passing away; therefore, encourage any backward plants with plenty of heat and moisture while the weather will permit such stimulants to be applied with safety.

GREENHOUSE AND CONSERVATORY.

The permanent occupants of the beds and borders to be allowed plenty of space in order to secure well-ripened wood, and, consequently, a more certain prospect of bloom. *Gesnera elongata*, *Crowea saligna*, and some of the *Correas* will now stand more heat and with a little forcing they may be brought into bloom a month sooner. Look well to the late autumn-flowering plants for these houses. *Heliotropes*, *Sweet Briars*, *Mignonette*, *Lemon-scented Verbenas* (*Aloysia*), and *Fairy Roses*, with the *Rose-scented Pelargonium* are always in request for bouquets after the middle of October, or as soon as the early frosts nip them out of doors. W. KEANE.

DOINGS OF THE LAST WEEK.

OUT OF DOORS.

AFTER a tremendous lashing on Saturday, the 27th, the weather has gradually cleared up, though the wind is still south and south-west. A couple of days with a fair amount of sun have acted on the flower-beds like magic. *Calceolarias* drooping to the earth are now lifting themselves, and showing no signs of the disaster, and *Scarlet Geraniums* are opening their trusses nicely, which refused to make a move for the best part of three weeks. If fine weather continues, the harvest will not only be glorious but flower gardens will be magnificent. The continued dripping weather has upset some of our calculations, and failures ought to be noted as well as successes. I have two beds of *Coreopsis*, or *Calliopsis*, I think called *marmorata nana*. I have also four boundary lines of it round large beds, the lines immediately behind being *Salvia fulgens*, which is now coming nicely into bloom. I have previously used all the small-leaved *Coreopsis*, just like the *Coreopsis tinctoria*—a splendid thing, though common. Generally they are in fine feather in July; but this season these two large beds and these four borderings, though full of bud for a month, refuse to open a flower. I gave away some of the *Coreopsis tinctoria atro-sanguinea* when it was opening its blooms, and it, I am told, has done well. I never had *marmorata* or any other kind serve me so before. Even when sown they generally flower early; but these beds were all planted out, and the soil is anything but rich, and not a single open blossom have I had, while *Calliopsis Drummondii*, though not extra dense in flower yet, has been very fair for a month past. I can fancy nothing but the want of sunshine. I hope it will be fine in August, but then so much time has been lost. Has any reader or coadjutor found anything similar, or can he tell any other reason?

Our first and second Cauliflowers were extra fine; but the successions, owing to the want of sun, were getting very leafy, and the flower was apt to separate instead of being compact and firm. There was no necessity for folding a broken leaf over the flower to keep it white and compact lately. Some of the plants seemed inclined to twist in the centre, and give only the semblance of a head; but now the sun seems to make all right, and we may expect to get as good Cauliflower in autumn as in early summer. Planted out a border for autumn use, and will plant more in a week or so; will then have a lot, over which protection may be thrown; planting them rather thick—say 15 inches apart, in a turf pit. Planted out, also, more Lettuces and Endive, and chiefly the former, as we find that so long as good Lettuces can be got, the Endive is always at a discount. Syringed some late Broad Beans well with sulphur and lime water, as the black fly had begun to settle on them; and young Beans are as much a luxury in many establishments as young Peas. Will be obliged to gather Dwarf Kidney Beans close, to keep them in regular bearing. Our cottager friends should bear in mind that one seed-pod arriving at perfection will distress the plant more than ten nice crisp pods fit for the table. Allow not, therefore, a single pod to remain except a few intended for seed, and it will be as well to leave a few plants for that purpose, and

pick all the others close. The more you gather the more you will get until the frost comes. If the weather should be dry, water with liquid manure not over strong. A visitor told me the other day he had killed his Cauliflower by watering from a cesspool. From what he stated he had given them an overdose: there ought to have been two parts of clear water to one from the cesspool.

WASPS.

Owing to the severe frost in winter, and the deluging rains, we hoped to see little of Mr. Wasp this season; but within these few days he has appeared in rather large force, and has considerably injured some fine Downton and Elton and Circassian Cherries, which have afforded us good gatherings for a month or six weeks past, and which we expected would have lasted a week or two more. On setting our eyes in motion we soon found out some nests, one of which was in a rough heap of stones close to the Fig-house, and the many members of the hive would soon have made short work with the Figs. A fusee was therefore made containing half an ounce of powder and an ounce of sulphur, placed in the hole, and when set fire to was covered with a turf to keep the suffocating fumes in. Means will be taken to catch those outside. Unlike bees, as wasps make no honey, when once they find good feeding-ground there is less yearning to return home; but still I suppose the home-instinctive influences are so strong that when not gorged or fattened with spoil, even they like to go back to their first domicile, and, therefore, however a nest may be destroyed, whether by the above mode of suffocation, or by digging it out after using boiling water, means out to be taken to catch those that might be absent on the wing, and felt the promptings of home sickness inducing them to return. A good decoy is a bottle filled half full with stale beer, sunk in the ground, so that the mouth of the bottle is level with the surface of the ground. The bottle is sunk close to the place of the old nest. The wasps will freely enter the smooth aperture, and when either their feet or their wings get wetted they then become prisoners for life. It is advisable by means of a stick to stir the contents once a-day, which by submerging the wasps puts the poor things out of torture, and a little wasting fruit may be added to the mixture to make it the more tempting to the wasps still at liberty. For catching on a large scale where no nest can be found, nothing, as a trap, excels the double hand-light. One hand-light with one or two small holes in the top is set on four bricks or pieces of wood at the corners. Beneath it is placed a saucer filled with stale beer, stale fruit, &c., sugar and water, &c.—anything that will tempt the wasp epicures. Another hand-light, but sound and whole, is placed on the top of the first. A frame of board may be set on the first for the second hand-light to rest on, or the space between the first and the base of the second may be stuffed with moss. Well, the wasp and the large blue fly and others not so big, anxious to have a swill, get to the saucer and drink and eat their fill; but so natural is it for insects as well as men to wish to rise in the world, that, instead of getting out by the lowly access by which they came in, that when they can take no more they mount up to the top of the glass, and finding an opening there they pass through, bent on rising higher, and never finding the little openings again they buzz and fly until they drop exhausted on the moss or ledge that separates the two glasses. Bushels of flies and wasps have thus been destroyed. It is, however, a slow, torturing process, to which we never could reconcile ourselves, did we believe the statement that “the smallest insect that we tread upon feels a pang as great as when a giant dies.” By means of a little smoke, &c., we have soon settled the vitality of the captives, but then we found the fumes left prevented others from getting into the snare; and so great is the influence of curiosity even in the fly and wasp world, that we have often noticed that this trap is only thoroughly successful after there are a good many captives buzzing and flying about in the upper glass. Like a bird in a cage, they become so many decoys in giving a tickle to the bump of inquisitiveness. Quicklime and tar are both good for filling the holes of nests, but neither are equal to the squib and digging out; but in all cases the bottle or the double hand-light should be resorted to to entice and snare the outsiders. Hornets are also anything but uncommon this season. In vineries where danger is feared, all the openings for air ought to be covered with Nottingham-lace net or book-muslin. The latter, slightly discoloured so as to be unfit for lady purposes, may often be purchased for keeping wasps and flies out at a mere nominal price.

HOUSES.

The vineries and Peach-houses have been attended to as lately described, the late vinery has been gone over, a few berries nipped out where rather thick, and a considerable number of laterals removed; but not so many as to arrest a rapid root action. Plants have been mostly removed from houses ripening their fruit. This is the only time in which we are able ever to have a vinery free from being crammed with under crops, from top to bottom, from Geraniums and bedding plants in winter, Strawberries and Dwarf Kidney Beans, &c., in spring, and above plants, as Gloxinias, Begonias, Caladiums, &c., liking a little shade, in summer. When dryness becomes necessary to the keeping of the ripe fruit, we manage to clear the stages and floors, continue to give a good amount of sun heat to early Peach-house, and but little air, in order to ripen the wood well. Sowed Cucumbers for a late crop, to be assisted with a little fire heat. Gave plenty of sun-heat to ripening Melons, and daubed the back of the pits and frames with sulphur paint, to keep spiders at a distance. If such ripening fruit required a little water, gave it beneath, either through a tube, or making a hole on purpose; flavour greatly depending on a dry atmosphere, which can hardly be obtained if the surface of the bed is moist. After sunny days, a slight dewing may be given to the foliage, which is a very different affair from syringing them even with the finest rose. Had we our way we would never have a rose point to a syringe, we would have them all with the double jet, one to draw the water in and the other for the water to be discharged by. After a little practice, by putting your thumb or finger on the discharging-jet, the water may be sent out with great force, and in large drops, or as fine as to resemble a misty dew; and that will refresh the foliage of the Melons, and yet not damp the soil. Such misty dewing is just the thing for many cuttings, and can be done in the time of the time that would be required by means of a fine-rosed watering-pot.

The conservatory has had several movings as respects the plants, the Pelargoniums of the first and succession crops going off quickly, and mere room has been given to Fuchsias and Scarlet Geraniums, &c. Camellias well set have been placed in an open shady place in the open air, and have been top-dressed as required. Azaleas, protected with Nottingham netting, have been left exposed, and the roots and surfacings examined. Cytisuses have been fresh potted and well syringed. Daphnes examined, repotted, and placed in a cold pit, that they might grow and set their buds well for early blooming in winter. Epacris, &c., exposed to more air to harden the wood. Lilliums tied up before the stems became incurved, and top-dressed with cowdung and loam. Balsams shifted into large pots and rich soil for autumn-blooming. Mignonette sown in six-inch pots for autumn-blooming. Greenhouse plants for early blooming exposed to sun and air to harden and mature their wood. Cinerarias potted for early blooming, giving shade at first, but plenty of air back and front. Late Pelargoniums, gave more room and air to encourage free blooming. Repotted Scarlet Geraniums and Fuchsias to come in in the autumn, and gave manure water freely to those that were in full bloom. Roses, budded and put in cuttings of Teas, Perpetuals, Chinas, &c., and as the weather got clearer had a busy time in regulating and securing flower-beds, which are quite a different thing from what they were at this time last week.

As there is now some chance of dry weather, and watering is an object here, we have given beds where there was a chance of getting at them their summer dressing or mulching. This consists of equal parts of old Mushroom-dung, leaf mould, and burnt earth or rubbish, passed through an inch-sieve. In common seasons this would have been done a month ago. A slight dressing of this—say from a half inch to 1 inch deep, is much relished by most things, as it keeps the moisture in and the heat out, and, therefore, should not be applied until the ground is warm enough. Nothing for these double purposes relish it more than the Calceolarias, but they have grown so strong that it was impossible to give it them this season, unless in rare instances. Before applying this top-dressing the beds are hoed and cleaned; and under ordinary circumstances they want little attention afterwards, the covering or mulching acts as such a good regulator. We prefer the mulching to any amount of manure-giving to the beds. The latter is apt to make the plants grow too strong, and to encourage growth instead of blossoms; but the mulching chiefly keeps heat and dryness out, and, if rains come afterwards, the richness that is washed in encourages surface rooting and free flowering quite as much as

free growth. I regret not being able to give this dressing sooner to the Calceolarias, for now on account of their dense growth it is next to impossible, as nothing so delights in moisture and coolness.

MOWING AND MOWING MACHINES.

If the weather keep dry we will be able to give the scythe and the mowing machine a holiday. Such seasons as this tell of the expense of a lawn; it is do, do, ever do, and no standing still. I have just turned up page 341 come to hand, and notice what Mr. Green says in reference to the statement on the 16th ult., and find it what I expected from such a machinist. To prevent anything like mistake, however, Mr. Green will forgive me if I state that I did not say his machine was "perfectly noiseless," but that the luxury consisted in its being noiseless in comparison with others on the wheel-and-racket system. Secondly, after taking out another link, and regulating the nuts at the axle, the machine has since been working well, though several of the semicircular pieces that form the link have broken off; and thirdly, that Mr. Green is right in supposing that I have a machine of last year. The one used here is 22 inches wide, and the number is 2821. I have read of the rim of the wheel being made higher, which will be an improvement. I have no doubt that the strong steel chain will also be a great improvement. But there is just one thing Mr. Green has forgotten to state, and that is—how these new unstretching chains can be made available for the machines sent out last year and previously. In these days we cannot expect a gentleman to buy a new machine merely to get an improved chain. I do not by any means say that Mr. Green should send me a steel chain to make up for the personal and friendly disappointments, but I am sure he will pardon me for hinting that he should give notice how, and on what terms, the new chains can be made available for the old machines, that otherwise are as good as ever they were. Though the principle is in all makers the same, I must add that the dividing of the iron roller in two, and the front wooden roller in three parts, is of great importance whenever it is necessary to cut on a sharp curve. I do not see why these improved chains should not fit the old machines; at any rate I do know gentlemen will be shy of improvements if a new machine must always be procured in order to secure them. Will Mr. Green kindly direct his attention to the subject, and thus lay us under another obligation?—R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications.

We cannot reply privately to any communication unless under very special circumstances.

ANNUALS TO STAND THE WINTER (*T. H. X.*).—All the Clarkias, Collinsias, Gillias, Candytufts, Nemophilas, Bantonia aurea, Erysimum Peroffskianum, Limnathes Douglasii, Platystemon californicus, Virginian Stock, Cornflowers (Cyanus major and minor), and Silene pendula. These are the surest to stand over the winter. As you did not say your locality we cannot say more, as these lists will be taken up by many in widely different localities.

RED SPIDER ON VINES (*A Young Gardener*).—You will find a reply in our last week's answers to correspondents.

LAWN (*E. L. H.*).—We can see nothing to alter on your lawn, except it be the back row in your ribbon. Here is a row of Love-lies-bleeding in front of shrubs. Such a row ought to be accompanied with its contrast—Prince's Feather, even if the two must run in one row, one of one, and one of the other. With a little thinning of the leaves of both, they make the best and cheapest back row we know. We would also have one pair of No. 1 beds in scarlet, say some very dwarf Geranium, and the edging to No. 3 we would have permanent with the variegated Arabis, which is the best of all for very small beds, and the cheapest to keep, as it requires no cutting or trimming in confined spaces like variegated Alyssum.

CRUSHED SEA-SHELLS.—"I shall feel obliged to you or any of your readers, who can inform me where I can procure crushed sea-shells for laying on garden walks."—RUSTICS.

CYANOPHYLLUM MAGNIFICUM (*A Constant Subscriber*).—This is a native of Madagascar. It requires a mixture of turfy peat and loam, one-fourth of the latter, and pot-herbs broken fine with charcoal and silver sand. It requires a temperature of 75° to 86°.

MAGNOLIA GRANDIFLORA (*Rosa*).—You cannot do better than mulch and water your Magnolia which is in a dry situation, and which you have just cut down.

BOOKS (*A Subscriber for Seven Years*).—You cannot do better than get "Greenhouses for the Many," published at our office, and which can be sent by post for 7 stamps.

CORONIS AND VERBENA (*C. B., Norwich*).—The seed of this Coreopsis can be bought in the shops. The Verbena is not better in colour than others already in cultivation.

STRAWBERRIES (*A Regular Subscriber*).—Your gardener has not done wrong in cutting off both leaves and runners from your Strawberry plants after they have done fruiting. It is a practice that is followed by many good gardeners, who, when there is a large breadth of them, actually mow the leaves off. The rationale of the process is rightly explained by your gardener, who seems to be a man who knows what he is about. There are adverse opinions, however, on this practice; but those who have followed it have found that they succeed in having excellent crops in consequence.

GREENHOUSE (*X. L.*).—With the two openings at the ends and those in front, you will not require any other arrangement for ventilation. Ordinary liquid manure will do very well for your Carnations and Gladioli, but do not give it too strong. If you cannot get that, make a weak solution of Peruvian guano.

VINE SHOOTS DISEASED (*A Subscriber, Dublin*).—Your Vine roots seem to have got it to bad soil. What is the condition of your border, and what sort of subsoil have you?

CLIMBERS IN CONSERVATORY (*T. S. P.*).—If your climbers were 3 feet or 4 feet high, they might be planted cut in large pots, boxes, or even in the border, below the front or side shelves, and the top taken through a hole on purpose, and trained up where required. All the dry there would not harm them. If this did not suit, a large pot on a box of similar size could be placed on such shelves or platform, in the same way as you have done the north wall.

VARIOUS (*M., Cupar Angus*).—Repot your Cape bulbs into larger pots, and give fresh soil if they have filled those they are in. Repot also your Chrysanthemums if they are potbound. They require very rich soil, at least one-fourth of it being rotten dung. The plant you enclose is *Acer campestre*. The *Lycopodium* will not injure your Fern.

LITTING VINES IN A PORBLE (*A New Subscriber*).—See what Mr. Appleby says in this day's paper.

HORTICULTURAL SOCIETY (*M. N. L.*).—To become a Fellow of the Horticultural Society you must pay an entrance-fee of two guineas, and an annual subscription of two guineas; or you may compound for your subscription by a payment of £20. This is the lowest subscription. There is another, which is four guineas annually, or a composition of £40. The former, which is the one you want, entitles you to attend all meetings and exhibitions; to participate to a certain extent in the distribution of plants and seeds; and enables you to give an order to introduce a friend to the gardens of the Society.

VINES DISEASED (*A Subscriber, Dublin*).—Your Vines are suffering from an attack of mildew. The moment it showed itself you ought to have applied flowers of sulphur; do so now, which will arrest the progress of the disease if it does not cure it. You may safely take a few bunches from the Vines next year. They appear to have done very well.

NAMES OF PLANTS (*H. X. W.*).—If your plant is from the Cape, it is *Gnaphalium acuminatum*. (*B. Fielder*).—Your oilskin was twice too thick, but the plants came pretty safe. It is the *Horminum violaceum* of old authors, and *Salvia horminum* of the present day; the cottage name being purple-topped Clary. The red leaves at the top are not called leaves, but bracts. (*M. Westcott*).—No. 1, *Epipaeis latifolia*; No. 2, *Sedum rupestre*. (*H. E.*).—The plant, the seed of which is found in Californian Wheat and flour, is *Melilotus officinalis*.

FLOWER SHOWS FOR 1861.

AUGUST 9th. BELFAST ROYAL BOTANIC AND HORTICULTURAL SOCIETY. (Plants, Fruits, and Vegetables.) Sec., George A. Canuthers.

AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.

AUGUST 20th. SHEPSON MALL. Hon. Sec., Mr. J. Brabner, Shepton Mallet.

AUGUST 28th. DUNSWORTH. Sec., Edward Forth.

SEPTEMBER 2nd. HECKMONOWICKE. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmondwike.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. Carpenter.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

REMINISCENCES OF A GAMEKEEPER.

"A CLOUDY night" may be a poacher's delight "at the season of the year," or the bright moon may be the best assistant to the keeper. People may lie in bed or lounge in the easy chair, and think of the wild excitement of the thing, but under the most favourable circumstances the former becomes an outcast, and the latter too often crippled with rheumatism. Such is my case; and while I am unable to do anything, I have felt pleasure in putting on paper some of the events of my past life. With me, as with most other people, reality has not kept pace with

anticipation; but I have lived long enough to know that our pleasures may be doubled if we will keep our desires within bounds, and that one essential to peace and quietness—and they go far in creating pleasure—is, to be prepared to find people differing from ourselves without thereby forfeiting all claim to our friendship or esteem. It will be readily understood that much of my time has been spent with sporting men, and I confess I have fallen into the common failing of the class—I have looked with pity, almost with contempt, on those who cared not for field sports. I am not about to moralise or to go deeply into the subject, but I am going to tell the truth, and to make my confession.

My first start in life was to beat for Rabbits when my young master went out to shoot them during his holidays. I was fond of it, and, therefore, did it well. I volunteered to clean the guns and to manage the dogs, and thus little by little I became a sort of servant rather than an odd boy or young labourer. The lad or young man who has once begun a sporting life will never afterwards make a good labourer. It is hard to settle down to turnip-hoeing after beating for Pheasants or marking Partridges. The pursuits are very different, and there is a freedom and excitement about one that the other entirely lacks. Many a good labourer is spoiled by being unsettled once or twice per week during the shooting season. It is not only pleasanter, but, where several guns are out, it is often more profitable than ordinary work. I remained in this place for some years, and then left to better myself.

I still think the time I spent there among the happiest of my life, and it certainly realised my idea of sport far better than anything has since. We had no preserves in the strict sense of the word. My master's property was not a valuable one so far as the rent-roll was concerned. It was in the northern part of Hampshire, and bounded on three sides by heaths and commons; some of them were enclosed, some open. There was no abundance of game, but enough for sport. I well recollect the first year I went out with my young master. I think I was as anxious as he was, I could not sleep, and long before daylight I was noiselessly creeping down stairs. As I passed my master's room the door opened, and I saw he was dressed all but his boots; he joined me, and at a quarter to four on the 1st of September we were ready to start. It was our first season. I knew every bird on the estate, where they were hatched, where they fed, and where they took to when they were disturbed. Those who walk into a hundred acres of swedes attended by two keepers, one with an extra gun, the other with a retriever, and shoot their seventy or eighty brace of birds in five hours, have little idea of the different sport it is in a heath country where Partridges are scarce; and the plethora birds that rise and settle in the same field are as unlike the sharp flyers we used to find as an overgrown Powder is to a sharp Blue Rock. But these are different on the first day of shooting, and they can be approached even on the stubbles.

I have never known much good done by beginning at daylight; I think it better for both men and birds to have their breakfasts first. This day was no exception, we found the birds on their feed, and they left the fields for the heath. In the misty morning we could not mark them down. The mist increased just before sunrise, and we had nothing to do but to wait till he dispelled the fog. As we sat on a bank I had my Alnaschar's dream. I was now appointed a sort of keeper, and a regular attendant on my young master. Although scorching weather, I had determined on wearing a velvet jacket he had given me, and I was besides laden with a game-bag, in which I had put everything that I thought could by any possibility be wanted. I did not feel the load then, and, sitting at a little distance from my master, the dogs lying at my feet, one hand resting on the nearest head, and the other playing with a small whip, I thought the calling of gamekeeper the most enviable under the sun, and myself the most to be envied of the class.

EGGS OF MOULTING HENS.

My hens are all moulting, and yet they lay eggs, if I may so call them; they are shapeless, and but few have a yolk in them. I want to know if you can give me a receipt for stopping their laying? If I am not mistaken, Mr. Brent has one which he has tried successfully.—C. D.

[The sort of egg you mention is a proof the hens are out of condition; but it is not uncommon when they are beginning to

moult. You do not state whether they have been long laying such abortions as you describe, or whether they are not the exceptions. We presume they are recent and few. Our practice with poultry has always been to follow Nature as closely as possible, and we have always paid the penalty of any deviation. We, therefore, do not offer any suggestion to stop their laying, it is sure to come of itself; but we advise you to feed well on oatmeal or ground oats, and if mixed with milk so much the better. Let them have a good grass run; and if that be inconvenient, give them full-grown lettuces to eat. To prevent a hen from laying is much like forcing her to do so in result. It is the beginning of disease, and must end in dropsy. Those who are in the habit of dissecting fowls can point out the effect of unnatural treatment and expedients in the presence of large bladders of clear water, and numbers of embryo eggs in a diseased state.]

LAMENESS IN FOWLS.

COULD you oblige me, through the columns of *The Poultry Chronicle*, what I could give or do to my Cochins chickens (Buff)? They are nearly one and all lame; they go with one leg before and one behind—in fact, all manner of ways but straight. I feed well, giving good oatmeal mixed with beer or milk twice a-day, and barley once a-day. They have a good run, plenty of green food, the floor of the fowl-house good hard gravel. I must tell you they have grown very large, at least I ought to say high on leg. They were hatched in February, and I fully thought some of them should have been prize-akers, but owing to their lameness must be kept at home. I should feel obliged if you could suggest any remedy. I have fed them on oatmeal and boiled eggs for the past week, but I see no alteration for the better.—J. CARR.

[The lameness you mention does not exist in reality. That from which your fowls are suffering is weakness caused in them, as it often is in human beings, by overgrowth. The only thing you can do is to continue a generous diet—say ground oats mixed with milk, and we advise you to keep them on the grass as much as possible. They will grow out of it.]

SHEFFIELD POULTRY EXHIBITION.

THIS Society held its fifth Show on the 3rd, 5th, and 6th inst. in Norfolk Park, Sheffield. The prizes competed for amounted to £271, exclusive of three sweepstake classes. We will give our report of the poultry classes next week.

Judges for *Pigeons* were Mr. Tegetmeier, of London; for *Game Fowls*, Mr. Challoner, of Workson; and for *all other classes of poultry*, Mr. Edward Hewitt, of Sparkbrook, near Birmingham.

The following is the list of awards:—

SPANISH.—First, H. Lane. Second, E. Brown. Third and Fourth, R. Teebay. Commended, Lord E. Hill, M.P. *Chickens.*—First and Third, J. R. Rodbard. Second, Capt. Heaton. Highly Commended, J. K. Fowler; J. R. Rodbard. *Hens.*—First, R. Teebay. Second, J. K. Fowler. Highly Commended, J. Garlick; J. H. Craigie; Capt. W. Hornby; C. Atkins; S. H. Hyde. *Single Cock.*—First, R. Teebay. Second, J. W. George. Highly Commended, J. Garlick; Marchioness of Winchester; J. Nunn.

DORKINGS (Coloured).—First, Marchioness of Winchester. Second, Lady L. Thynne. Third, Capt. W. Hornby. Fourth, C. H. Wakefield. Highly Commended, Lady J. Cornwallis; Capt. W. Hornby; Lady L. Thynne. Commended, Miss Robinson. *Chickens.*—First, Rev. J. F. Newton. Second, J. Lewry. Third, W. Dolby, jun. Highly Commended, A. Potts; C. H. Wakefield; H. W. B. Berwick. Commended, Lady J. Cornwallis.

DORKING (White).—First, J. Robinson. Second, Rev. G. F. Hodson.

DORKING (Any Colour).—First, H. W. B. Berwick. Second, W. Dolby, jun. Highly Commended, Lady J. Cornwallis; G. Chadwin; Lady L. Thynne. *Single Cock.*—First, Marchioness of Winchester. Second, Mrs. E. Herbert.

GAME (White and Piles).—First, H. Adams. Second, T. Youdan. Third, G. W. Moss. *Chickens.*—First, T. Youdan. Second, R. Hemingway. Highly Commended, W. Pashley; W. Hopkinson.

GAME (Black-breasted and other Reds).—First, Capt. W. Hornby. Second, E. Archer. Third, G. W. Moss. Highly Commended, T. Owen; W. Pashley; G. W. Moss. *Chickens.*—First, R. Woods. Second, E. Archer. Highly Commended, J. Keab'e; Capt. W. Hornby; J. Holme; G. W. Moss; A. B. Dyas. Commended, T. Hallatt.

GAME (Backs and Brassy-winged, except Greys).—First, W. Gomersall. Second, T. Sanderson. Third, Mrs. Hall. *Chickens.*—First, Messrs. Noble and Ineson. Second, T. Youdan. Highly Commended, J. Beighton; T. Burgess, jun.; T. Hartley.

GAME (Duckwings and other Greys and Blues).—First, S. Matthew. Second, R. Swift. Third, J. Bradwell. Highly Commended, J. Newton. *Chickens.*—First, R. Chase. Second, T. Youdan. Highly Commended, W. Bentley.

GAME (Any Colour).—First, Capt. W. Hornby. Second, R. Woods. Third,

G. W. Moss. Highly Commended, W. Gomersall; R. Swift; R. Baines. *Single Cock*.—First, G. W. Moss. Second, T. Yondan. Third, R. Hemingway. Fourth, S. Matthew. Highly Commended, G. Kidger; J. Bradwell; E. Archer; R. Woods; R. Swift; W. F. Dixon, junr.; H. Adams.

MALAYS.—First, C. Ballance. Second, J. Dixon.

COCHIN-CHINA (Cinnamon and Buff).—First and Second, T. Stretch. Third, H. Tomlinson. Highly Commended, Miss V. W. Musgrove. *Chickens*.—First, T. Stretch. Second, Miss V. W. Musgrove. Highly Commended, Capt. Heaton; E. Smith; Mrs. A. Watkin. Commended, H. Tomlinson.

COCHIN-CHINA (Brown and Partridge-leathered).—First and Second, T. Stretch. Third, J. Bolton. *Chickens*.—First, Miss V. W. Musgrove. Second, E. Tadmam. Highly Commended, W. S. Parker. Commended, J. K. Fowler; H. J. Anson.

COCHIN-CHINA (White or Black).—First, R. Chase. Second, W. Dawson. Third, R. Titterton. *Chickens*.—First, C. R. Titterton. Second, R. Chase. Highly Commended, A. E. Smith; W. Dawson.

COCHIN CHINA (Single Cock of any colour).—First, C. Moor. Second, T. Stretch. Commended, M. L. Fearnside; W. Dawson.

BRABMA POOTRA (Light or Dark).—First and Second, R. Teebay. Third, Rev. J. R. Blakiston. *Chickens*.—First, J. H. Craigie. Second, Rev. J. R. Blakiston. Highly Commended, J. K. Fowler. *Cock*.—First, J. H. Craigie. Second, Miss S. A. Harvey.

HAMBURGH (Golden-pencilled).—First, W. Froggatt. Second, S. Smith. Third, I. R. Robinson. Commended, F. Rarly. *Chickens*.—First, T. and C. Parkinson. Second, Carter & Valiant. Highly Commended, J. Dixon; C. H. Wakefield.

HAMBURGH (Golden-spangled).—First, J. H. Hyde. Second, W. R. Lane. Third, J. Dixon. Highly Commended, G. Brooke. Commended, Miss E. Beldon. *Chickens*.—First, S. H. Hyde. Second, H. Carter. Highly Commended, J. Dixon; M. H. Broadhead; G. Brooke.

HAMBURGH (Gold or Silver-spangled).—*Single Cock*.—First, J. Dawson. Second, H. W. E. Berwick. Commended, Mrs. Sharp.

HAMBURGH (Silver-pencilled).—First, W. Wood. Second, A. Nicholson. Third, T. Keable. Commended, J. Martin. *Chickens*.—First, T. Barber. Second, T. Keable. Highly Commended, J. Martin; H. Marshall.

HAMBURGH (Silver-spangled).—First, J. Dixon. Second, R. Teebay. Third, H. Carter. Highly Commended, J. Firth. *Chickens*.—First, J. Robinson. Second, J. Dixon. Highly Commended, Miss E. Beldon; H. Carter; Mrs. H. Sharp.

HAMBURGH COCK (Gold or Silver-pencilled).—First, W. Holmshaw. Second, J. Robinson. Highly Commended, J. Martin.

POLANDS (Black, with White Crests).—First, J. Dixon. Second, G. Ray. Third, T. Battye.

POLANDS (Gold or Silver).—First and Second, J. Dixon. Highly Commended, R. W. Boyle.

POLAND COCK (any colour).—First, J. Dixon. Second, withheld.

REDCAPS.—First, J. Hollins. Second, Mrs. S. Harrop. Third, Mrs. R. Birks. ANY OTHER DISTINCT BREED.—First, Lady L. Thynne. Second, Miss E. Beldon. Third, W. Dawson.

BANTAMS (Golden-laced).—First, F. Wragg. Second, J. Dixon.

BANTAMS (Silver-laced).—First, E. Yearley. Second, T. H. D. Bayley. Highly Commended, Miss S. A. Harvey.

BANTAMS (Black).—First and Second, J. W. George.

BANTAMS (White).—First, D. La born, junr. Second, T. H. D. Bayley.

BANTAMS (Game).—First, R. W. Boyle. Second, M. Turner. Third, J. Camm. Highly Commended, J. Camm. *Single Cock*.—First, T. H. D. Bayley. Second, J. Camm. Highly Commended, R. Moon, junr.

GESE.—First, Mrs. E. Appleyard. Second, J. K. Fowler. Highly Commended, J. Dixon (Toulouse); Marchioness of Winchester (Grey Toulouse); Marchioness of Winchester (White Embden).

DUCKS (White Aylesbury).—First, Second and Third, J. K. Fowler. Highly Commended, J. K. Fowler; J. Middlehurst, junr.

DUCKS (Ronen).—First, J. Holme. Second, Marchioness of Winchester.

DUCKS (Black East Indian).—First, C. Ballance. Second, F. W. Earle. Third, Rev. J. R. Blakiston. Highly Commended, G. S. Sainsbury; Rev. J. R. Blakiston.

DUCKS (Any other Variety).—First, J. Dixon (Grey Call). Second and Third, Miss S. Hellewell.

TURKEYS.—First, J. Dixon. Second, Marchioness of Winchester (Cambridge). Highly Commended, J. Smith (Cambridge). Commended, Capt. W. Hornby.

SWEETSTAKES.

GAME COCKS.—First, Capt. W. Hornby. Second, G. W. Moss. Third, E. Archer.

GAME COCKERELS.—First, Capt. W. Hornby. Second, J. Staley.

GAME BANTAM COCKS.—Miss V. W. Musgrove.

PIGEONS.

The Show of Pigeons amounted to nearly one hundred pens, being a very much larger number than have ever been exhibited at this Show previously. The character of the birds was also much higher than in former years, the winners in most of the classes being first-rate specimens of the respective breeds.

The Carriers and Powters were shown singly. The first prize for Carrier cocks was taken by Mr. Rake with a very fine black, remarkable for its length of neck and general carriage. There were eleven entries, and the class, as a whole, was an exceedingly good one. In Powters the competition, especially among the cocks, was severe. Mr. Rake won the first prize with a very long-limbed black cock that had never been exhibited previously; this bird taking the prize over his well-known blue cock that has been so very successful. In Powder hens, Mr. Rake was also the winner of the first prize; the second going to Mr. J. Smith for a very young red hen of great promise. In *Short-faced Tumblers*, the prizes were awarded to Almonds. In *Trumpeters*, Mr. Oates won the first with a pair of Whites of very unusual merit. In *Barbs* the show was good; and in *Turbits* particularly severe, Mr. T. Parker's first prize Blues

being very good; and the pair of Red *Jacobins* of the same exhibitor were more beautiful in colour than any we have seen for some time. In *Owls* there were two pair of the very small North African White variety shown. The first prize was awarded to one of these pair, and the second to a very good pair of Blues. In the "distinct variety" classes these was a good show. The first prize was awarded to a good pair of Hyacinths, that were absurdly entered as Bronze-wings, which is a name that should be retained for the Australian species. But the most interesting pen in the class was that which contained a pair of the Australian ground Pigeon, the Wongo Wongo of the colonists. It is to be regretted that there are no prizes offered to distinct species, for it is obvious that where prizes are only offered to a new or distinct variety of the domestic Pigeon, the *Columba livia*, a Judge has no right to award them to any foreign Dove that is a totally distinct species of animal. The pen is question was the first we have ever seen exhibited at a Poultry Show, and it would be interesting to know if they have ever bred in confinement. They were the property of Mr. A. G. Brooke, and were highly commended by the Judge.

We were glad to see so good a Show of Pigeons at so late a period of the year; but the prize list being good and liberal called forth numerous entries.

CARRIERS.—*Cock*.—First, M. Rake. Second, J. Pearson, jun. Third, G. Robson. Highly Commended, Mr. Yardley. Commended, Mr. Deakin and Mr. Wood. *Hen*.—First, G. Robson. Second, H. Child, jun. Third, R. J. Wood. Highly Commended, Mr. Deakin.

POWTERS.—*Cock*.—First and Second, M. Rake. Third, J. Smith. Highly Commended, Mr. Brown and J. Smith. Commended, Mr. Deakin. *Hen*.—First and Third, M. Rake. Second, J. Smith.

SHORT-FACED TUMBLERS.—First and Second, M. Rake. Commended, Marchioness of Winchester and H. Child.

RUNTS.—First, F. Key. Second, H. Child, jun. Commended, Marchioness of Winchester.

FANTAILS.—First, F. Key. Second, H. Child, jun. Commended, Marchioness of Winchester.

JACOBINS.—First, T. T. Parker. Second, H. Morris. Highly Commended, W. H. Oates.

TRUMPETERS.—First, W. H. C. Oates. Second, J. C. Brierley. Highly Commended, Mr. Key and Mr. Yardley. Commended, Mr. George.

BARBS.—First and Second, M. Rake. Highly Commended, Mr. Craigie. Commended, T. T. Parker and Mr. Yardley.

TURBITS.—First, T. T. Parker. Second, J. C. Brierley. Highly Commended, Mr. Yardley. Commended, H. Morris and H. Child.

OWLS.—First, H. Morris. Second, M. Rake. Highly Commended, M. Rake.

ANY OTHER NEW OR DISTINCT VARIETY.—First, A. White (Hyacinths). Second, F. W. Wilson (Frillbacks). Highly Commended, A. G. Brooke (Australian Wongo Wongo Pigeons). Commended, Mr. Boyds (Magpies); H. Morris.

RABBITS.

LENGTH OF EARS.—First, Messrs. Gust & Coleman. Second, J. Martin, jun.

COLOURED RABBIT.—First, B. Gale. Second, G. Jones.

FOR WEIGHT.—First, H. Rodgers. Second, G. Mills.

WOODEN HIVES—BEE STINGS.

Will some of your Scotch apiarists be so good as to say what thickness the wood is of their wooden hives, and if they keep them in a bee-house winter and summer? and also how they find them answer, if better than the common straw hive for the North, as it seems to be the general opinion here (county of Durham) that they do best in straw, and especially in winter. I have a wooden-bar frame-hive, and a glass, four panes on each side-hive, and find when the temperature is at all low there is a condensation, and the liquid runs out, especially from the wooden hive; and I should, therefore, like to hear from some of your Scotch apiarists their opinions as to the best kind of hive. Wasps are very plentiful this season, and I am told have destroyed two hives out of four or five sent to the moors. Would it not be as well for you to give Mr. Payne's remedy—turpentine for destroying them, published in the useful little book "Bee-keeping for the Many" published at your office? Besides, it would be of great use to farmers, as they sting the women in reaping. By the by, when on the subject of stings, I have found the best and quickest remedy for a sting is to rub it well with fresh urine: this cures and prevents the swelling sooner than anything that I know besides. I have found soda, &c., seems to be often worse than the stings, and creates more swelling.—W. A.

BEE SWARMING EXTRAORDINARY.—Mr. William Ashburner, of Benthawa, near Penny Bridge, has a hive of bees which threw out three swarms in three successive days, all of which have been hived, and apparently are doing well. The days were the 13th, 14th, and 15th inst. July has been very prolific for swarms of bees, and bee-keepers own that it is rather late for swarms to be

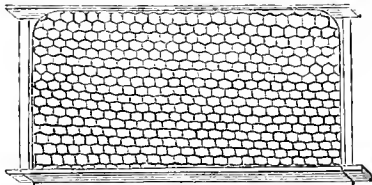
prosperous; but, if we are blest with a month or two of dry weather, there is no doubt but that honey will be most abundant in autumn.


MODE OF SUPPORTING FALLEN COMBS.

On the 6th instant, I dispatched a stock of Ligurian bees to London, on its way to the North; unfortunately, it was returned to me three days afterwards by my esteemed correspondent in the metropolis, with a note intimating that so many combs had dropped during its transit, that he was afraid to forward it to its destination.

On examination I found that four brood-combs had fallen on the floor-board. Most probably the mischance occurred at an early period; for not only were the combs securely fixed in the positions they occupied when down, but some square inches of new comb had been attached to the bars, and filled with eggs by the queen. A good deal of brood in various stages had been destroyed in attaching the combs to the floor-board, and to each other; but not a dozen bees appeared to have been killed.

In order to enable the bees to refix the combs in their natural position, I replaced them one by one, and kept each in firm contact with its appropriate bar by supporting it on a strip of wood, half an inch wide by a quarter of an inch thick, which in its turn was sustained by binding-wire passed over the bar at each end, as represented in the following sketch.



The upper edges of the combs were also kept in place by a couple of clips of this form  slipped over each bar near the ends, and embracing the sides of the comb. These very useful little articles are easily formed out of a strip of sheet zinc, or tin, about three-quarters of an inch wide, and 4 inches long.

The next morning I examined the hive and found the combs so firmly refixed by the bees that I was able to remove all the supports, and trust them to their natural attachments.

This mode of support is applicable to large guide-combs (which cannot easily be attached by melted wax) as well as combs that have dropped by accident, and may, possibly, be of as much service to others as it has been to—A DEVONSHIRE BEE-KEEPER.

ARTIFICIAL SWARMS.

It is not a pleasant task at any time to record one's failures. I do so to prevent, if possible, my brother bee-keepers falling into the same dilemma, as many, no doubt, think they can lead the bees to almost do anything, particularly such a simple affair as making artificial swarms. If I recollect rightly, Huber says that by abstracting eggs from one hive and placing them in another with worker bees, a complete colony will ensue. Tegetmeier says with his boxes artificial swarms can be formed any time when drones are numerous, by merely removing a bar of brood-comb and placing it in an empty hive which is to be put in the old one's place. They rear a queen from the young brood, while both old and young hives will do well and prosper, or words to that effect, while he lauds artificial over natural swarms in no small degree. (I think now it is on a par with Professor Bolman's roasted potatoes as sets for the prevention of the potato murrain.) But to proceed. From some cause or other one of my straw hives in the winter last lost its queen, although the workers were populous. Her death might have arisen from old age, it being a first swarm of 1860. They bred drones, and carried in at times small quantities of pollen; of course it was necessary for the rearing of them, but their numbers gradually diminished until the 10th April last, when I cut out a piece of comb, and fitted in a corresponding piece containing eggs from its more fortunate neighbour. Singular enough, this queen-rearing experiment failed, although all the eggs were hatched out. Nothing daunted, I, on the 22nd May, supplied it with another piece of comb, and now, July, I find that also a failure; so I

drove the few bees the hives contained, as robbers commenced plundering the stores which weighed 14 lbs. nett. My having a good supply of bar-hives, and drones being numerous on the 20th May, my established stocks in box bar-hives were very strong; so I took two bars of brood-comb from one, and placed it carefully in an empty hive, and clean, empty combs on each side to save the bees the labour of making more. I removed the old stock, and put the new one in its place. It being a fine day so many were out at work, I had a good swarm. They worked well for a week or so but reared no queen, although every egg is hatched out; and I am inclined to doubt the hive now having a queen from which I abstracted brood to renovate the hive first mentioned, for they since have really done nothing. For twenty years have I been a bee-keeper, but these failures to me are worse than all the bad seasons in that time put together. Naturally being desirous of keeping pace with the spirit of the age, I adopted bar-hives with the intention of preventing natural swarms decamping and increasing the honey-store; but from my ignorance of their habits, or my clumsy manipulation, I have to regret more than losing a natural swarm or two during the season, as I think that, had I not interfered, they would have done much better.

Perhaps Mr. Woodbury, or some other experienced and kind contributor, may be able to account for my failure; and any information on this subject will be pleasing to our fraternity in general, and be gratefully received by—A MIDDLESEX BEE-KEEPER.

LIGURIAN BEES.

You will like to know how it has fared with my Ligurians since you paid me your visit. The royal larva, which came in your hat, and which we placed in the glass over the stock, whose queen with all her eggs and brood had been previously removed, has been right carefully tended by the workers. The cell was covered in on Thursday, and may, therefore, be expected to give forth its occupant at the end of this week. It appears to be of the ordinary size, and is jealously guarded.

On Thursday I turned out the Italian queen you sent me on the 11th, with all her subjects, from the box in which she was at first located, giving them a larger bar-box full of honey and brood of common bees. This I did, first with a view to strengthen the population, and add to the space and riches of the stock; secondly, as I found a quantity of Ligurian eggs and brood in the box vacated by the Italian queen, I resolved to transfer to it the splendid population of the May artificial swarm, just over the Ligurians in the bee-house, and make them rear a family of hybrid queens, such as the royal larva will be which you brought with you, should she issue from her cell a perfect insect. These hybrid queens I shall supply as far as they go to my other stocks after depriving them of their English queens. The transfer was easily effected, and their (magnificent) English queen destroyed; and they are, now, doubtless doing their best to replace their loss. There were about 1000 Ligurian eggs, and quite young larvae in the box given to them. Of course, I took away every particle of the brood and eggs of their own queen. And, now, let me say how glad I shall be to receive another pure Ligurian as soon as you can spare me one, and the finer the better. I ought to have two pure bred and fertilised queens, so as to be able next year to replace every English or hybrid queen in my apiary with the Italian breed in its purity.—B. & W.

SKY BEES.

HAVING seen in your No. 16 an inquiry by "G. C." respecting a sound in the air like the swarming of bees, I beg to say that in July, 1852, my curiosity was raised by a humming in the air as described by your correspondent. As a lover of Nature I became desirous to know the cause; I, therefore, inquired of some labourers if they knew what the sound proceeded from. One of them, more intelligent than the rest, informed me it was caused by "midsummer hums," and was always heard in hot, dry weather. I asked him how he knew that, and if he had seen them. He replied, Yes, and that if I tossed a stone in the air they would come down on it. I did so, and found it to be correct; but before the stone reached the earth they ascended again with wondrous speed. Being still curious to become more closely acquainted with them, I procured a small junk of wood, which I smeared with Stockholm tar, hoping that some of them might adhere to it, and thus become captives. It had the

desired effect—it brought down three brown flies, something like a bee, but much smaller. I carefully secured them in a pill-box, intending to send them to some proper person to be named, but, unfortunately, lost them from my pocket. I have tried the same experiment several times since, but have failed to bring down a single insect, owing, as I suppose, to their being higher in the air than the stone or junk of wood could reach. I believe them to be a small variety of Hoverfly. I have seen since what I consider to be the same insect, at early dawn of a hot, dry summer, in great numbers hovering beneath trees and shrubs; but from their quickness have never been able to take one.

White, in his "Natural History of Selbourne," thus writes, in 1789:—

"*Humming in the Air.*—There is a natural occurrence to be met with upon the highest parts of our downs in hot summer days, which always amuses me much, without giving me any satisfaction with respect to the cause of it; and that is a loud, audible humming of bees in the air, though not one insect is to be seen. This sound is to be heard the whole common through, from 'Money Dells' to Mr. White's avenue gate. Any one would suppose that a large swarm of bees was in motion overhead. This noise was heard last week, on the 28th of June."

—B. FIELDER, *Gardener, Alresford, Hants.*

DIMENSIONS OF HIVES—LIGURIAN BEES MENTIONED BY VIRGIL.

WHAT should be the inside diameter of a round straw hive, the width of the comb-bars, and the space between the bars?

All that has been said in favour of the Ligurian bee, was told us by Virgil two thousand years ago, and yet his yellow bee was treated as a myth. So much for naturalists.

[I consider 16 inches diameter by 9 inches deep, with eleven bars, a good size for circular bar-hives for common bees; and 17½ inches diameter by 9 inches deep, with twelve bars for Ligurians. The bars seven-eighths of an inch wide, and equidistant from each other.—A DEVONSHIRE BEE-KEEPER.

The passage in Virgil alluded to by our correspondent is probably this:—

Alter erit maculis auro squalemtibus ardens,
(Nam duo sunt genera) hic melior, insignis et ore,
Et virilis clarus squandis: ille horridus alter
Desidia, latuque trahens inglorius alvum."
(*Georg. IV., l. 91—94.*)

TRANSLATION.—There are two kinds, the better grows with spots of gold, has a more beautiful figure, and shines with bright scales; the other is filthy through sloth, and ingloriously drags a large body after him.]

TRANSFERRING SWARMS OF BEES—BEES IN A CONSERVATORY.

W. H. H. would like to be informed if it be possible to transfer a swarm of bees, hived about six weeks ago, from a common straw hive to one of "Neighbour's Improved." Also, if bees would be likely to thrive during winter in a conservatory.

[The only way of transferring the swarm at this time is by driving. The driven bees in the new hive should occupy the place of the old stock, which must be shifted a couple of feet on one side. The operation may be repeated in three weeks' time, and the expelled bees added to those first driven, whilst the stores of the deserted hive remain for the proprietor. Copious feeding must be resorted to as soon as the bees are located in their new habitation, and must be continued until its contents reach 20 lbs. net weight. The above directions are given on the supposition that the "improved hive" is without comb-bars. Should it, however, turn out to be a bar-hive, combs and all may be transferred; and if "W. H. H." wishes we will give directions for doing this in a future Number.

We have never tried keeping bees during winter in a conservatory. Perhaps some of our correspondents may have done so, and may favour us with the result of their experience.]

SUPERIORITY OF LIGURIAN BEES.

LIEUT.-COL. NEWMAN will doubtless be well pleased to find that his predictions regarding the Ligurian or alpine bee are completely falsified by experience.

I have already stated that these bees as far excel the common species in the breeding powers of their queens (a quality which

includes in itself every important point of bee excellence), as they do in beauty of appearance. I have now the pleasure of informing Col. Newman and the aparian readers of THE JOURNAL OF HORTICULTURE, that they are equally at home in the mild climate and fertile vales of Devon, as in the more elevated regions of the Alps. I can also assure the gallant Colonel that the Ligurian bee is by no means deficient in its "choice of pasturage and so forth when out of its own district." The honey collected this summer by this alien race being of the finest quality and flavour.

Is it, after all, so very certain, that the common bee (*Apis mellifica*) is indigenous in Great Britain? and would not Col. Newman's objections to the introduction of *Apis ligustica* into this country apply with at least equal force to our race-horses, which sprung originally from Arab sires, as well as to our porkers which owe much of their fattening qualities to an admixture of Chinese blood? The same argument, if pushed to the extreme, might proscribe the cultivation of foreign fruits and vegetables, and once more reduce us to regard the ancient British acorn as a staple article of food.—A DEVONSHIRE BEE-KEEPER.

RHUBARB WINE.

IT is an old saying that "too many cooks spoil the broth," and I fear the same remark would apply to rhubarb wine, about the making of which your correspondents differ so much, that it would be a great boon to the uninitiated if you gave them one good receipt for making it. In the 21th Vol. of THE COTTAGE GARDENER, page 202, there is a long receipt for it, in which the process of making is described very accurately; but in which there is one inconsistency. It says, "In a month or six weeks after cellaring it may be fined and drawn off into a clean cask, &c. The cask may be now finally stopped close, &c., and allowed to remain till March, when it should be bottled, &c."

Now, in the notes at foot of the receipt is the following:— "1840.—Made May 29th, put in cask June 2nd, stopped June 16th, cellared June 23rd, racked and fined August 3rd, October 25th racked and sulphured, bottled January 25th, 1841.

Now, in the receipt no mention is made of the second racking which took place October 25th. Could Mr. Levett, who gives the receipt, kindly explain this?

He also directs the rhubarb-stalks to be bruised and pressed. "WORCESTER," in your Number of July 2nd, says the stalks need only be cut into slices, and afterwards squeezed in a cloth; and "W. W.," in your Number of July 23rd, says, that pressing and squeezing are not either necessary or advantageous. Which is right?

If you could give one good plain receipt for making rhubarb wine, it would be received with many thanks by many of your readers, and by none more than myself.

What kind of rhubarb is best for making the wine, or for general purposes?—B.

OUR LETTER BOX.

PROPERTIES OF A DORKING (*Non Subscriber*).—A straight breast is not an essential point, but it is a very great advantage in a Dorking fowl, and, every other quality being equal, it would turn the scale against a crooked one. Some hold it to be an hereditary defect; others that it is the result of fast growth, consequent weakness and pressure on a narrow perch, which has effect on the bone at an age when it is merely a cartilage. We incline to the latter opinion, and, therefore, advise very low, wide perches for growing chickens. They should be 6 inches or 7 inches wide. It is always considered that 1 lb. per month is good increase and result for a Dorking cock; if, therefore, yours weighs 5 lbs. at the end of four months, you may be well satisfied.

ROUP IS SPANISH (*Alpha*).—The question of roup or no roup in Spanish, will render a longer notice necessary than we shall be able to give this week. We will content ourselves with stating our belief we are right, and will shortly enter more at length on the subject.

QUEEN BEE (*An Amateur, Cuyar Angus*).—The bee was much crushed before it reached us, but is undoubtedly a queen, probably a superannuated one vanquished in battle by the reigning sovereign.

LONDON MARKETS.—August 5.

POULTRY.

For the next few weeks poultry will give way to harvest, and the supply will be very small. It will, however, be quite equal to the demand, which will be almost nominal for some time.

	Each—s. d.	s. d.		Each—s. d.	s. d.			
Large Fowls.....	3	6 to 4	0	Guinea Fowls.....	0	0 to 0	0	
Smaller Fowls.....	2	6	3	0	Leverets.....	0	0	0
Chickens.....	1	9	2	0	Pigeons.....	0	7	0
Ducklings.....	2	6	3	0	Rabbits.....	1	3	1
Geese.....	5	0	5	6	Wild.....	0	7	0

WEEKLY CALENDAR.

Day of M th	Day of Week.	AUGUST 13—19, 1861.	WEATHER NEAR LONDON IN 1860.				Sun Rises.		Sun Sets.		Moon Rises and Sets	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.								
13	Tu	Gypsophyla muralis.	29.747—29.638	deg. deg.			m. h.	m. h.	m. h.	m. h.			m. s.	
14	W	Scabiosa.	29.666—29.630	68—50	S.W.	—	44 af 1	25 af 7	0 10	8			4 36	225
15	Th	Ambrosia.	29.680—29.504	71—46	S.E.	.14	46 4	23 7	47 10	8			4 25	226
16	F	Stevi.	29.351—29.277	67—53	S.	.19	47 4	21 7	47 11	9			4 11	227
17	S	Duchess of Kent born, 1786.	29.548—29.415	65—45	S.W.	.03	49 4	19 7	morn.	10			4 2	228
18	Su	12 SUNDAY AFTER TRINITY.	29.593—29.525	67—45	S.W.	.01	50 4	17 7	58 0	11			3 49	229
19	M	Zinnia.	29.786—29.755	64—51	S.W.	.29	52 4	15 7	16 2	12			3 36	230
				68—55	S.W.	.06	53 4	13 7	34 3	13			3 23	231

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 73.6° and 51° respectively. The greatest heat, 92°, occurred on the 18th in 1842; and the lowest cold, 32°, on the 13th in 1839. During the period 140 days were fine, and on 98 rain fell.

THE NEW GARDEN AT SOUTH KENSINGTON.



COLOURED plans of the Royal Horticultural Society's new gardens were prepared by Mr. Nesfield in May, 1860. The way Mr. Nesfield proposed to plant the garden was indicated on that plan; but Mr. Nesfield's flower planting has been entirely altered—whether by himself, or by the Council, or Garden Committee I do not know, and, therefore, I cannot put the saddle on the right back. I do not know to whom the merit is due, or who is answerable for breaking through the laws of composition planting. The best, and perhaps the very worst, examples of composition planting in this kingdom, or in any other, are to be seen there, and both examples lie side by side in the

very centre of the garden. The large circle of 90 feet diameter in front of the upper lake, which, laid out most elaborately in the composition style, is the most exquisitely beautiful piece of composition design for flowers I have ever seen in book or law, and the planting of all the parts and the keeping are in the highest style of the flower-gardener's art. Two beds, however, out of the many in that composition, require to be altered or lengthened out, rather by doing away with their spar inner ends—or say that two out of the eight principal beds require the figures in front of them to be done away with, in order to lengthen these two so as to match with the six. Then apply the rule for judging composition to any of the degrees round the great circle, and you will not find a hair's breadth out of place, and a perfect harmony of contrast is obtained skilfully in two ways—first with the spar accompaniments, and then with the kinds of flowers which have been made use of. The combination is perfect—all the parts combine in making a perfect whole, and that whole is harmonious throughout.

The rule for knowing all this, except the harmony, is exceedingly simple, and is like the law that altereth not. It is this: all the planting of beds in masses together, in all the different ways, by all kinds of people with all sorts of tastes, is called composition planting. And no matter how intricate, or how round, or how square the outline of the figure or figures may be, there is supposed to be an axis running through the centre of them as a line drawn through the earth from the south to the north pole; that line is called the axis of the composition. If you find more room on one side of the axis than there is on the other side, you lose the agreement in the parts, and harmony is gone. If you find a spot or speck of colour more on one side of the axis than on the other, there is a blemish in the picture, and the harmony of effect is gone so far out of place. And if a composition design is perfect

in the execution, it may be entirely upset by injudicious planting. Too much of any one colour prevailing on one side of the axis throws this kind of composition out of balance, out of the harmony of contrast and of combination, the two divisions not combining in equal proportions to make good pictures. Now, these are the rules by which great ladies compose their own designs and criticise those of others—I mean such artists as those ladies who were the Judges of the dessert competition last June, and whose judgment went against the practice of ninety-nine of us gardeners out of every hundred. My remarks on this planting will be read by such judges after or before they see it; and I can no more lean to favour or shy from fear than I can fly to the moon, without damaging my credit in the eyes of such judges—that is, what little truth I may have learned at their fair hands I should throw away to save some one in the Councils of the Society.

The next in advance of that grand circle is a match pair of triangular spaces for flowers, one on each side of the main walk. A border 6 feet wide goes all round each of these triangular spaces, and that border is cut into promenade-like beds as a frame to the composition inside—to the picture, in fact. A circular bed and an oblong bed alternately, as at the terrace of the Crystal Palace, is called the promenade manner of laying out. In this frame the circles have half a circle on each side of them in white gravel (spar) for walks to get into the interior, and the oblong beds are all planted as they should be with the same kinds of plants: the effect is the richest and the most perfect I know of both in the design and in the planting and keeping of the plants. If the interior, or the picture within that frame, had been all laid down in coloured gravel like the glaciis, the pictures would be as rich and as effective as the frames: but an attempt has been made to combine flowers and coloured gravels as one whole, as a composition, and the effect is one of the worst that can be conceived; there is neither contrast, harmony, nor combination, therefore no meaning. But as contrast is more arbitrary than harmony and combination, and as one man may call a contrast that which is only a different thing from the other, I give it up in this instance, and say only a want of harmony and combination.

The four glaciis on the banks of the four canals are most beautifully laid out in fancy tracery, which is all filled in with coloured gravels or spar of different colours, representing the emblematical flowers for the four divisions of the kingdom. The Rose of England being the centre flower in each. The Irish Shamrock, the Scotch Thistle, and the Welsh Cuck, come in in beautiful flowing tracery, each in its own division or glaciis. But the Rose is not a Rose in colour or in design, and there is no flower like that Rose in the whole vegetable kingdom. The thing has six petals and six divisions to the calyx—that is two great artistical faults in one flower. A Rose is meant, but no Rose will be found with that number of those parts, which is No. 1 fault. Then, six-petalled flowers have usually no calyx at all.

If the School of Design at South Kensington allows this violation of natural objects even in fancy work, in paper-hangings to wit, to be in harmony, we ought to have the swan with two necks on the water below the glaciais. Mr. Waterton, one of our ablest critics in a zoological branch of natural history, has been very hard upon Du Chaillu for the way he had drawn his account of the gorilla, and here is a case in point for retaliation. The Frenchman may combine with the Welsh, the Irish, and the Scotch, and say they knew to their cost there was a wrong leaf in the English Rose, but never could discover which was which till now. Here ends the disagreeable part of my discourse to the reader. The most disagreeable to myself is this, that if I were to say of all the rest of the planting, and the laying out, and the rest of the garden what they really deserve to be said in their praise, some might say that I only put that in as a soap to Cerberus to let me out at the impassable gate.

THE GREAT CENTRAL BED.

Well, be it so, the tale must be told from the very heart of the composition from the centre of the great circle of 90 feet right through. That centre is a raised circular bed in a vase-like frame standing on a circle of grass, the grass may be 18 feet or 20 feet in diameter, and the bed may be one-half of that measurement by the eye. The centre of the bed is planted with Punch Geranium; the rest with Cottage Maid, the Crystal Palace name for that Horseshoe kind; the edging is of Phlox Drummondii, Variegated Alyssum, and Tropæolum elegans, each kept to one-third share of the room. Working our way from the centre, we have a band of blue slate spar, or slate broken to rough gravel all round the grass; then eight great circles in a ring all round, or wheels within a wheel. A beautifully-shaped main flower-bed occupies the major part of each of the eight circles, every match or opposite pair of beds being of a different pattern from the three other pairs, and each match pair of course is planted with the same kind of plants. Besides this main bed there are two small S-shaped beds or pear-shaped ones in each of the eight circles, besides corner and offshoot-beds of coloured gravel to fill up the measure of each circle, or eight main beds and sixteen accompanying ones. The small pair-beds are planted with two kinds of plants only, alternately making a second arrangement in the same circles. One pair of the main beds is planted with *Gazania splendens*; second pair with Crystal Palace Scarlet Geranium; third pair with Purple King Verbena; and the fourth with variegated Geraniums. The pair of secondary-beds are thus—one pair with Golden Chain Geranium and *Lobelia speciosa*; the next with variegated Geraniums, and so all round the circle. Batwing-shaped beds come outside the circles to fill up the spaces left between each pair of them. All these are in yellow *Calceolarias* all round, the inner sides of them are edged with blue *Lobelia*, and the outside with *Cerastium tomentosum*, so kept that nought can exel. Outside all this is a ring of Box-edging, and then a path of their deep red brick, or Reading bricks, pounded into gravel and the dust screened out. The outside of all this is a bold stone edging 3 inches or 4 inches deep on the inside, and the lawn level with it outside, making the grand circle a panel-bed sunk 3 inches or 4 inches. Low standard Roses go all round this circle on the grass, the open spaces over the roots being laid with pebbles. But we must have a drawing of that grand circle as a specimen of the most complicated composition without a leaf or an inch out of joint. A specimen of elegant embroidery with flowers and figures of coloured gravel, and suitable walks of the same colours running all round and in among them, the whole forming such a gem as all England cannot match as far as I ever heard. The frame of the two angular embroideries in front of that circle are in scarlet, purple, and orange edged with white. A band of Crystal Palace Scarlet

Geranium along the centre of all the oblong-beds; a band of Purple King Verbena on each side and across each end, with *Calceolarias* outside. The circles are in variegated Geranium and blue *Lobelia*, and one of them at one end is with Lady Plymouth and blue *Lobelia*, which is particularly rich. A principle is violated again in putting two or three of these circles in the frame down in coloured spar.

THE OVALS.

In the original design there was a pig with one ear on each side of the grand circle on a lower flight of the terrace. On the lefthand side is a long oval of grass with a pedestal and vase in the centre of the grass, and a border of 6 feet wide all round the oval cut into flower-beds, circle and oblong alternately, and on the righthand side of the plan is a fellow to that grass oval, actually an oblong square with the corners cut off. But in the alteration of the plan they made the pair to match as long ovals, round which are four oblong beds and four circular beds planted in the first style of art and of colouring—a very simple figure, but a most effective one, in scarlet, yellow, and a light shade of purple; the four circles in Scarlet Geraniums, and the four oblongs in yellow *Calceolarias*, and a band of Mrs. Vernon Nosegay running all round in the centre. The scarlet at each end of the band of Mrs. Vernon brings out its tint nearly as well as if the scarlet was all round it.

These ovals are 16 yards long, 12 yards wide, and the circles of scarlet have white gravel on each side, as walks to get into the centre oval of grass. These and all their flower-composition compartments are bordered on the outside with the deep red brick gravel, which gives a great richness to every one of them. White sand has been much used of late years for the same purpose, and some will prefer it still; but that being matter of taste I have nothing to do with it, as there is no accounting for taste, else the old woman would never have kissed her cow.

THE FRIEZES.

The side flower masses are four in number, two on the west, and two on the east side. They are marked on the plan as long oblong figures, one on each side of the centre cross walk. These parts are called the corridor terraces, and the pattern plans are called friezes. The south-west and north-west frieze are on the west side, of course. The south-east and the north-east are opposite. Each of these spaces is 103 feet long, and 22 feet wide, and each is sunk 4 inches below the level of the lawn, and each is bounded by the deep red brick gravel. Each is different in the design and in the planting, and each part of every one of them is in beautiful harmony or marked contrast between the flowers and the coloured gravel, which is of four tints—pure white, cream colour, light or grey blue from pounded slate, and the deep red from pounded bricks. Now, here are four degrees of taste displayed, every one of which is just as good as the other, if you can only think so; but as no two ever yet quite agreed in matters of taste, I will tell you my taste of the four without prejudice to your better taste.

My favourite frieze piece is the south-east one, and I shall tell why it is my choice, because the ground colour is entirely in the coloured gravel, and that each of the colours has a whole length of the space devoted to itself, without that eternal frittering or mixing of tints at angles and broadsides, such as you may possibly prefer in one or other of the remaining three. Pure white Derbyshire spar gravel occupies the whole length centre of my favourite figure, cream colour comes in the whole length on each side of the white, and the deep red is all round. You will probably say my taste allows too much variegated plants on a pure white ground, as seen in that frieze, but I said nought about the plants in any of them yet, and I shall begin at the farthest off from my choice—at the south-west frieze, which is extremely gay, the

gayest in the whole garden. This space is laid out in six-foot-wide beds placed diagonally across the space, and six successive beds planted exactly alike fill up the frieze, with a small triangle at each end corner to fill up what the diagonal left there. Two rows of yellow *Calceolarias*, and two rows of *Scarlet Geraniums* on each side of the yellow and across each end of it, and 4 inches wide of *Cerastium*, the whole kept to the exactness of Euclid, make one bed, and there are six of them with coloured gravel between them; then a double line of *Box* to make a four-inch-wide band divides the cream from the brick red colour, and all is finished except both the end-beds, which are of a peculiar make—say a circle with four blunt wings to it, which will be near enough. These are in scarlet, orange, and gold (flash as *Meg Merrilees' dress*), *Scarlet Geranium*, *Tropeæolum elegans*, and *Golden Chain*. The north-west frieze is composed also of six principal beds in cable-chain pattern. The cable is folded, as it were, and both ends of the folds are cut off, leaving our six beds across as aslant the space, with spar beds where the cable is cut. A very pretty pattern to imitate. The centre of the six beds is in *Flower of the Day*, then *Purple King* on both sides, and *Cerastium* for edging—very simple, but most effective. This is the richest of the four spaces, as the last, the gayest. The third frieze, the north-east one, is on this wise:—a centre line of beds runs the length of the pattern, two kinds of beds alternately, circular-beds and diamond-beds, with two of the corners of the diamond cut short with the sweep of the circle. Seven circles with variegated *Geraniums* and Variegated *Alyssum* mixed, and as many diamonds with *Scarlet Geraniums*. There is also a bed at each end of this run nearly horseshoe fashion, these are in yellow *Calceolaria* edged on the inner side with *Cerastium*, and on the outside with blue *Lobelia*. On each side of the pattern is a row of beds, a pair of them embracing each of the centre circles in nearly a half-moon shape; these are in yellow *Calceolarias* and are edged like the end-beds. At a distance the row of scarlet diamond-beds in the centre look like one long bed of scarlet, and the beds of yellow on each side as a broad margin of yellow to the mass of scarlet, and it is difficult to conceive a more telling arrangement. The fourth and last frieze pattern, my favourite on account of the disposition of the ground colours in spar gravel, is thus planted:—the beds are in three rows as in the last pattern, in the centre are four circles in *Scarlet Geraniums* and five circles with projecting wings to each in variegated *Geraniums* and Variegated *Alyssum* mixed and edged with *Purple King*, with a light blue, very small diamond of slate spar in the centre of each of the circles; but the spar there is no improvement. Each of the scarlet beds has two beds of yellow embracing it as in the last pattern, which are edged in the same way.

The rest of the bedding over the garden is on the promenade plan, match pairs on each side of a walk, or one row on one side of a walk as the shape of the ground permits. Across the bottom of the centre terrace are six match pair of beds, three on each side of the terrace. Those next the entrance are two match pairs of *Miller's Nosegay Geranium*, with a pair of *Compactum Geranium* between them. On the opposite or west side are two match pairs of *Punch Geranium*, and a pair between them as on the east side. *Miller's Nosegay* is the oldest *Geranium* in the garden, it is the only one which *Miller* describes, as *Fothergilli* is the only one figured by *Sweet*. *Mrs. Vernon* is the next or third kind of *Nosegay* in the order of time, and that is as far as the *Society* have yet reached. Across the upper end of this centre terrace are four beds of *Bishopstowe Scarlet Geranium* edged with *Mangles'*, called here *Conway's Royalist*; but *Royalist* was of quite a different strain, I had it from *Mr. Conway* himself, so there was a mistake in the name from *Earl's Court*, *Old Brompton*; besides, I judged or booked *Royalist* at a *Chiswick*

Show in a collection from *Mr. Conway*, and I am certain of the name and the kind. *Bishopstowe Scarlet* is now at *Chiswick* from some one under the name *Triomphe de Paris*. To collect the synonyms of bedding *Geraniums* would be ten times more useful to gardeners than describing them in detail. But *Bishopstowe Scarlet* does no good in the new garden, neither does *Baron Hugel*—two sorts which are prized in other gardens. Up on the conservatory terrace are two rows of promenade-beds, one row from each end of that house, the long oblong bed at each end being of *Lady Middleton*, which is preferred there to *Trentham Rose*, because it does grow so strong; while at the *Crystal Palace* the *Trentham Rose* is more in repute, *Lady Middleton* not being so strong as their exposed position requires. And thus it is all over the country, one kind suits best in one place, and another kind in the next and third place. A correspondent writing the other day said the *Crystal Palace Scarlet* is far outstripped by *Punch* in his garden, and *Punch* is all straw and no grain in many places. Nothing short of actual trial on the spot will ever determine which is, and which is not, a good bedding *Geranium* for that or this garden.

I never yet saw flower gardening carried on in such high order, or the plants and flowers looking more perfect than at *South Kensington*, and there is no place that I know of where a young gardener could learn so much as there; learn what to imitate and what to avoid I mean. The whole is a gem for a town garden, and every one concerned may be proud of the way the groundwork and the planting were executed. They have not lost a leaf of the miles of *Box*-edgings and scrolls, and every top has been nipped with the finger and thumb instead of the knife or shears, in order to keep the *Box* in maiden trim till it pushes up side shoots to fill in the patterns, and *Green's* sixteen-inch mowers are preferred for cutting the grass, which, rough as it was a few months back, looks now smooth as carpets.

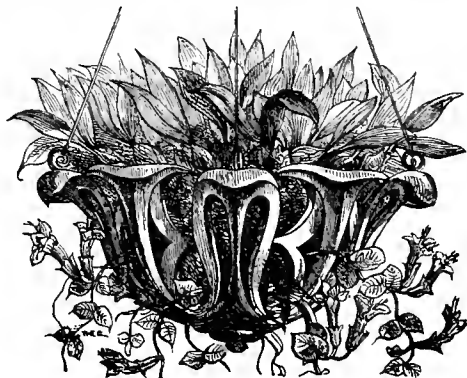
D. BEATON.

ARRANGING FLOWERS IN BOUQUETS AND VASES.

(Concluded from page 356.)

BASKETS OF HANGING FLOWERS.

THERE seems to be at present a rage for hanging-baskets, filled with growing plants, and these same baskets may be also a very fair addition to our in-door display of drooping *Fuchsia*-like cut flowers. The engraving here given represents especially some of the beautiful flowers of the *Orchid* tribe. But *Begonias* would look very lovely hanging from the edge; while *Fuchsias*, *Lilies*, *Lobelias*, or *Ferns* would be in the centre, extremely light and pretty.



The style of flowers should accord always with that of the basket which contains them. In a heavy-looking basket

(though a heavy-looking basket may weigh very little), there should always be some plant of size and solidity sufficient to justify to the eye its seeming weight; while in little, simple, sieve-like baskets, of which I am very fond, graceful waving fronds of Fern, drooping Begonia sprays, light wreathing Ivy, or arching branchlets of Forget-me-not, are the most proper kinds. Achieving the appearance of naturalness is a very great art in this. The Ivy should seem to twine of its own wild will; while Forget-me-nots, for instance, would crop up and bend over round the edge. A little creeping moss growing in the basket is a most useful plan for grounding; and the smallest bottles hidden in it or in freshly gathered moss preserve the requisite moisture round the flower-stems.

For those flowers, even, that hang underneath the basket, a little care in choosing much-bent stalks will make it an easy task to keep them upright enough for the water necessary not to be poured out. A loosely-made ball of moss, soaked for some time as a ball in water, and then very slightly squeezed just for a moment to prevent the water dripping, is a very good plan for keeping the flowers moist; but in summer, in an open basket, this would quickly dry, and require to be again well wet all through. The "hedgehog" or porcupine shapes made for Crocuses are not inappropriate for putting in such a basket to hold the flowers.

Climbing Roses for baskets are remarkably lovely. Generally, when we can have it, a natural spray is very much better than anything artificial, such as different flowers, even of the same kind grouped, and a wild Rose branch, for instance, what can be more graceful and more sweet?

These baskets are often suspended by several wires, and a long Ivy wreath or creeping stem of Lycopodium is very pretty for twining about and concealing them. Some persons, again, form a little nest at the knot where the wires all meet, placing in that nest some plant which grows with very little soil, and leaving it naturally to find its own way down.

These baskets really can hardly but be pretty; the chief fear, as usual, is too much crowding their contents. Neither great variety nor great quantity should ever be permitted; for where one or two delicate light-leaved plants, and a little bright-coloured flower may look very elegant, a close arrangement, on the contrary, has a very clumsy look, and entirely destroys the idea of a basket with its little stock of flowers growing within its own bounds.

DESIGN FOR HANGING-BASKET.

Several fronds of Maiden Hair Fern, or Adiantum cuneatum, arranged as a plant or crown in the very middle, or of the Blechnum Brazilian Fern, look very well in this place, with a close surfacing of Lycopodium aspidia, or long tresses laid on lightly of one of the creeping mosses, not attempting, however, to pack the basket with any kind of leaves.

Two or three wild Harebells rising amidst the Fern, a long line of Honey-suckle, or of the great white Bind-weed; or a wreath of the pale Passion-Flower, or of white Jasmine, or of Clematis. Not one of these would come amiss, or, rather, any one of them would be most lovely.

Two or three sprays underneath of similar kinds of flowers, as though the wreath that waved above or swept around the edge had put out also a little tuft below. The Harebells, however, and all bell-shaped flowers like them, must always grow upright to let their bells hang down.

Begonia fuchsoides is as good a plant as I know for creeping out through the sides of the baskets. Sedum Sieboldi would do well also—tolerably, at least—for, if anything, it is rather large, and hardly enough of a

distinct bright colour. The more one colour is kept to in these baskets the better, generally, is the effect produced.—E.

AUTUMN MANAGEMENT OF THE AURICULA.

As I promised in the earlier part of the year, when writing on the spring management of this beautiful florist's flower, to give some directions some months later with regard to its culture, I now redeem my promise; and if I should seem to be needlessly precise in the directions I give, let not any experienced grower turn over the leaf in disgust, but let him bear in mind there was a time when he would have been right glad to have them. Has he ever essayed the noble art of cooking?—ever been with a party of bachelors in a shooting-lodge on a grouse mountain, when he has been unanimously dubbed the Ude or Francatelli of the party?—and has he ever tried to concoct a dish from some wonderful cookery-book that one of the party has brought with him? The directions were, perhaps, to put a little cayenne in the savoury mess of hare and grouse soup. It comes to table—we can hardly call it that, rather the festive board. Its fragrance perfumes the tent, and he congratulated himself on the success. "I say, D—, you forgot the pepper!" one old stager, whose throat has been coppered in Indian service, calls out. "Pepper!—No. What is your throat made of? Why, he has burnt my tongue nearly off!" In vain he appeals to the book—a "little pepper." Ah! but that does not say how much, and leaves you a very wide margin. The most successful essay I ever made, by-the-by, in this line was on a return from the Eglinton tournament, when I was requested to preside at the concoction of an Irish stew in the yacht coppers, and when everything was accurately weighed out. And now let me concoct my dish here.

I have ventured this summer to keep my Auriculas in their blooming-frames, and in the same position in which they were all the spring—viz., facing the north, and I have found this to answer admirably. They have been very carefully shaded, and abundance of air given to them, and their watering well attended to; and the result has more than answered my expectations—the plants have grown well, I have had fewer summer deaths than usual, and a great deal of trouble has been saved. I have always kept the frames open night and day, but not so open as to admit rain upon them. The shade has been taken off at night and in dull weather, but kept on at all other times. The plants are easily looked over, and have been so every week, and green fly brushed off them with a camel's-hair brush; and now this week I commenced my annual task of repotting. "Commence" may seem a grand word; but to explain it I must say that, having many duties connected with my parish to attend to, I can only give an hour every morning to my garden, lengthened on Monday into three; so that only a few can be done each day, and probably a week or more will elapse before my task is completed.

Premising that, like Mrs. Glass, you have caught your hare (and only adding, that if you have not there is no better time for catching it than the present), I will now suppose that you are only anxious to dress it. The material in which it is to appear must be the first consideration; and as doctors, so do cooks differ—Auricula cooks as well as others discarding all the horrible quackeries of old times, when Sangrados, Balhazars and others sent growers to make up as vile decocting as ever the three witches made in their smoking chaldron. I will merely say that simplicity and common sense in this, as in everything else, are far before all the nostrums that either ignorance or over-anxiety has prescribed. There are, then, just two formulae which I think are worth mentioning, differing only in the amount of manure in each. Take, then, either of the following one measure (either barrowload or bucket, according to the amount of your stock), of well-rotted cowdung not less than eighteen months old, half a measure of good yellow maiden loam about the same age, half a measure of good decomposed leaf mould, and about one-twentieth of the whole of silver sand; let this be thoroughly mixed together, run through a coarse sieve, and kept in a dry place. The other recipe is simply increasing the amount of loam and leaf mould, making the compost to contain equal parts of them and the manure. When thus sifted and mixed, it will, if right, look almost good enough to eat, quite mellow, and such, as you would at once say, anything ought to grow in it.

Take now your plant of Auricula, turn it out of its pot as

you would do any pot plant, by holding it in your hand upside down; take off all the drainage, and then shake off all, or nearly all, the old stuff. Some growers do not leave a particle of the old compost, but regularly shake it off; others say this is too severe treatment, and, therefore, leave a little of it remaining. Whatever you do, there is one thing must be always attended to—Auriculas have a tap root, and there is a tendency in this to become elongated, and also to rot. This is injurious to the other roots, and affects the well-being of the plant altogether. It should, therefore, if it have grown longer than 1 inch or $1\frac{1}{2}$ inch, be shortened, cutting it off with a sharp knife, and dressing the wound with powdered charcoal, so as to prevent bleeding. If your plant has grown much it will be necessary to put it into a larger pot. Before doing this trim off all dead leaves, take off any offsets that are rooted, and brush off all green fly with a camel's-hair pencil. There is a difference of opinion as to the size of pots. I think it is a mistake to overdo it, and consider for the largest plants a six-inch is large enough; others use seven-inch and even eight-inch. The drainage ought to be perfect, no flower being so easily affected by want of proper attention in this respect as the Auricula. A good handful of broken pieces of pots is not too much for the largest-sized plants. Let this be put carefully in, and then a handful of the potting-compost. The plant should then be taken in the left hand, the roots laid regularly round so as to reach all parts of the pot, and then, holding the leaves together so as to prevent the mould from getting into the heart of the plant, fill in, pressing it tolerably firmly down, and when done giving the pot a gentle tap on the board so as to settle it all, and your task is done. Now water: this should be done with a syringe, for as the mould is very light and tolerably dry, the probability is, that you would, by watering it in the ordinary way, either make holes in it or else wash it over the side of the pot. In syringing be careful to avoid wetting the heart of the plant, and, indeed, wet the leaves as little as possible. Now return them to the frame, keeping them very well shaded and tolerably close, but do not shut them up altogether. They will require, as at all times, watchful superintendence. I have no doubt many persons whose eyes have been, and are, dazzled with the kaleidoscopic patterns that make gardens now so resplendent, will say what a fuss and bother about a few pot plants. Surely if they require all this, they are not worth it. "*Chacun à son goût*," say I, she was an early love of mine, this pretty alpine maid, and, unlike many early loves, she retains all the freshness of her youth. I have coaxed and fondled her, and when she has rewarded me with one of her sweetest smiles, "was I not happy?" I cannot help it if my neighbour Jones does think the flaunting, gaudily dressed Mrs. Jones is much more presentable than Brown's neat and trim little partner. I know which I prefer, and certes if I wanted to take one myself, should not ask Jones' advice upon the point.

I have tried to introduce several of my friends to very near relatives of my own stock; and if any of them is minded to begin, I say now is the time, the demand for them is increasing, and I quite expect that next spring such a collection of them will be seen at the Botanic Society's Shows in the Regent's Park, as has not been brought together since the days when John Dickson, of Acre Lane, reigned supreme as the metropolitan Auricula grower; and if one may judge from the crowds that gathered round them last spring, there will be few more attractive things there. May I ask those who grow them if they will kindly keep a record as to uncertainty of heart blooms, specifying the sorts and also in what points their deviation from their normal condition has taken place? As to sorts, I can only refer to former Numbers of this Journal; and I think if those who are growers will look at a beautiful and most truthful figure of Smith's *Lycurgus*, in the next "Floral Magazine," they will acknowledge that we are in a fair way of adding to our list some excellent kinds.—D., Deal.

VARIEGATED SOLANUM CAPSICASTRUM.

I READ with great interest what is being said on the variegation of plants in THE JOURNAL OF HORTICULTURE weekly. I had a batch of *Solanum capsicastrum*, six of which I planted on my Vine-border in the open air, and to my great surprise I found a side shoot on one plant was variegated. I took it off, struck it, and it is now growing in a three-inch pot. There are leaves on the plant it was taken off that are a little tinged with white,

but on the plant I have struck every leaf is margined with white. I think it will make a very good plant for decoration of the conservatory, as the contrast of the red berries and variegated foliage will be good. What I wanted to know is, if it is the only one you have heard of, or whether it is common.—A FIVE-YEARS' SUBSCRIBER.

THE BEDDING SYSTEM *versus* THE MIXED HERBACEOUS BORDER.

I BELIEVE it will be difficult to convince the young floricultural gardener—who, with trowel in hand, is accustomed to turn out some hundreds of *Verbenas*, *Geraniums*, and such like each day during the second and third week in May—that the display he is calling sets forth is second to that of the old-fashioned plodding cultivator of the beginning of the present century for variety, interest, and structural beauty. Yet it must be confessed that it is so. The one produces a never-ending variety, beginning with the very earliest spring, or even before any other tokens of spring exist anywhere else than in the flower-border. The Christmas Rose, Winter Aconite, Snowdrop, and other things gladden us with their much-admired blooms, to be followed by others still more interesting and numerous; and the early, central, and late summer months present an endless display of beauty and variety to which our modern parterre is quite a stranger; and the latest autumn is enlivened by some or other of the many species of plants in bloom, of which the list of herbaceous plants presents so goodly a number.

Now, these qualifications on the part of a class of plants whose servitude extends over so lengthened a period, ought to be justly weighed against those whose chief merit consists in the great display they make during the months of July, August, and September. And in many instances a considerable part of July is gone ere anything like a full display be made; while it must be confessed that, with few exceptions, the positions they occupy are very uninteresting the whole of the remainder of the year.

I am the more emboldened in making the above remarks by the intelligent communication of a correspondent who signs himself "RUSTICS," but whose views on these matters coincide so much with my own that I cannot omit giving them verbatim. Addressing the Editors he says, "I am obliged for the trouble you have taken in going a little into the subject of herbaceous plants as adapted for small gardens; and if you could from time to time give us an article on their management, and advise the public to alter their style of gardening (the bedding system) which has of late become so prevalent, and to instruct them in the idea that glare is not elegance, particularly in small gardens, I am convinced you might confer as great a benefit as Mr. March has lately done by his graceful arrangement of floral decorations for the dinner table at the last horticultural show at Kensington. I do not say that the bedding system is not suitable for extensive grounds, nor would it be advisable to discard it when the building was suitable and the flower-beds geometrically arranged; but I would have no such style of floral decoration in little bits of places, as I consider it prejudicial to good taste."

Now, diametrically opposed as our intelligent correspondent's views are to those of many of the writers of floral works of the present day, and the practice of others equally entitled to attention, there is nothing in them but I could fully and unconditionally endorse. Small bits of grounds are not suited to the "bedding system." A plot of turf cut up into beds about the size of a pocket-handkerchief, with perhaps one about the length and width of a cottage stair carpet, to which the term "ribbon-border" is applied, is at best a sorrowful mimicking of what a flower garden ought to be. Most plants, to look well, ought to be allowed to grow and assume, in some degree, the proportions they will do when under the favourable circumstances of good cultivation; but this can hardly be done when cramped up into the hampering position assigned them in so small a bed, and divided by so small a strip of turf from another bed equally diminutive. Our correspondent's views are quite correct. It is utterly absurd to give a park-like character to a plot of ground perhaps less than half an acre; and it is equally so to expect clear distinct lines of beauty in dots of colouring, in which the shapes of those nearest the observer are those only discernible, or, at least, they are the only ones whose outline can be clearly traced: therefore, when the space is small, a good boundary-belt, or border of the most useful and ornamental

herbaceous plants, will in a general way be most telling; and assuming the centre to be turf, one bed, a circle or oval, will in a general way be sufficient. This may perhaps be of the fashionable bedding plants of the day, although I am far from certain that they are most appropriate; and if the bed be 12 feet or upwards in diameter, I should say dwarf evergreen shrubs with an edging of Pinks would be more ornamental. A few bedding Geraniums and Calceolarias may be introduced amongst the herbaceous plants of the outside border, or now and then patches of the more sturdy annuals may also be introduced there; but let herbaceous plants be the paramount object of the front of it at least. A shrubbery, or standard Roses, might form the back if required. This, of course, will suggest itself to the cultivator, who has to consider several objects in the general effect.

After writing the above, circumstances prevented my finishing the article; and I see our worthy coadjutor, Mr. Appleby, has given an excellent list of herbaceous plants to another inquirer at page 274. To this list I have little to add; and as Mr. Appleby may possibly refer to it again, the subject is in excellent hands. But by way of comparing the effects produced by herbaceous plants with bedding ones, and also of removing the idea that some of the so-called systems of massing and ribbon-bordering, so common in the bedding way at the present time, being of modern date, I may say that the most brilliant ribbon-border I ever saw was one of Crocus, and this upwards of thirty years ago. And although I have several ribbon-borders (planted in the usual way with Geranium, Perilla, and other striking plants), varying in width from 3 feet to upwards of 20 feet, I have not a single row of any plant that equalled in grace and beauty a hedge or line of *Dielytra spectabilis*, which bloomed in great perfection in the spring; and at the present time (July 24th), a row of *Aconitum virginicum* is almost equally beautiful, though differing, of course, in habit and appearance from the *Dielytra*; and some dwarf edgings of *Arabis variegata* equal that of anything in the greenhouse or bedding line, and have the advantage of being perfectly hardy. Plants of *Alyssum saxatile* also give a lively tint of golden yellow to the flower-borders in spring, and a host of other plants carry on the display till late in autumn.

In saying thus much in favour of hardy herbaceous plants, I by no means deprecate many of the ornaments of the parterre; but what I find fault with is the almost total neglect the former has fallen into through the latter engrossing the whole of the public attention. New Verbenas or Geraniums, differing the least possible shade only from previous well-known varieties, are eagerly sought after, and anything fresh that is adapted for bedding meets with great patronage; while no one thinks it worth while to seek after any new species of hardy ornamental herbaceous plants, and good old ones are getting fewer and fewer. That a change may take place in public opinion I have every reason to believe when the present taste for glare is satiated and a desire for change returns again; and some old cultivators who now sigh over the days when Pinks, Carnations, and similar plants were all the rage, may yet live to see their former pets reinstated, and with them a host of new acquaintances which an extended patronage would be sure to bring into the field. Whether this takes place soon or late, it is certainly likely to occur; and assistants like that of our worthy correspondent "RUSTICS," by giving a just and eligible reason for saying what they do, will help to bring about so desirable a state of things.—J. ROBSON.

EARLY-FLOWERING CHRYSANTHEMUMS.

In reference to what "E. C." says, page 364, about the early blooming of Chrysanthemums, it may be stated that there is a race of early-blooming sorts, to which it is possible the variety referred to may belong. With me Scarlet Gem has been fully in flower for the last month on old plants, and young late-struck spring cuttings are very forward in bud. This is not exceptional, as it is the permanent character of the variety, which I have grown for several years. I recollect seeing a few years since an early-flowering yellow, the name of which has been forgotten, and this is, perhaps, the one your correspondent refers to. It was certainly not Annie Salter.—CHRYSON.

GOOSEBERRY CATERPILLAR.—As several of your correspondents are at a loss how to get rid of the Gooseberry caterpillar, they will find the following an effectual cure:—Form a decoction

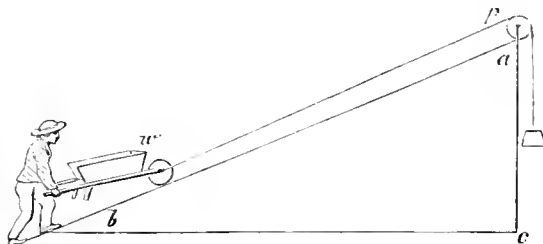
of the common Foxglove by boiling it in water, and then when it is cold syringe the trees when it rains. This is the way the Lancashire Gooseberry growers use it.—JACK KETCH.

MECHANICS AND MATHEMATICS APPLIED TO GARDENING.

(Continued from page 362.)

THE INCLINED PLANE.

AN inclined plane is a smooth surface sloping towards the earth, of which the accompanying figure gives an example.



In this *a b* is the inclined plane; *a c* the height to be surmounted; and *b c* the base.

A very familiar example of the employment of the inclined plane, is the sledge employed by brewers' men to move a heavy barrel of beer from the ground into the dray or waggon. Another example occurs in the plank up which a gardener wheels earth to the top of a high bank.

The quantity of power gained by the use of an inclined plane, or slope, is always in exact proportion with the difference between the perpendicular height (*a c*) and the length of the slope (*a b*). In other words, the longer the slope in proportion to the height, the greater the ease with which the weight can be pushed or dragged to the top of the height. Thus, if from *b* to *a* be 20 feet, and the perpendicular height, *a c*, be 2 feet, the weight, or wheelbarrow, *w*, would be kept from passing downwards by a weight of one-tenth of the weight of the wheelbarrow slung over the pulley, *p*; but if the height, *a c*, be 3 feet, then the weight over the pulley must be three-twentieths of the weight of the wheelbarrow. In other words, if 20 lbs. were required in the first instance, about 30 lbs. would be required in the second.

To state the rule in another form, the advantage gained amounts exactly to the proportion between the perpendicular, *a c*, and the inclined plane, *a b*. If the perpendicular measures only one-tenth part of the inclined plane, the power necessary to impel the weight up to the top, *a*, will be only one-tenth more than would be required to impel it along a flat, or horizontal plane (*b c*); but if the perpendicular be one-half that of the inclined plane, half as much force must be employed as would be required to impel the weight along a horizontal plane, as from *b* to *c*. Thus, if the wheelbarrow, *w*, is laden with 200 lbs. of earth, which the gardener could only just move freely on the horizontal, *b c*, then, if he had to wheel the barrow from *b* to *a*, and this incline was ten times as long as the height of *a c*, then 20 lbs. of the earth must be taken out to enable him to effect the ascent; but if from *b* to *a* were only twice the length of from *a* to *c*, then 100 lbs. must be taken out of the barrow.

The importance of attending to the mechanical power of an inclined plane, is well illustrated in the formation of roads for hill-ascents. Where we write this we can look upon a road cut by a gentleman up the face of a hill, totally regardless of the imperious law of the inclined plane. The cost of that road was great, but the incline is so steep, that very few carriage horses are there who do not jib and refuse to face it. The owner of the road is now constructing a road gently ascending round the hill, at a still further heavy outlay. He would have spared his purse if he had attended to this warning—"If two roads rise, one at the rate of a foot in 15 feet, and another at the rate of a foot in 20 feet, then the same power that would move a given weight 15 feet on the one, would move that weight 20 feet on the other in the same time; in other words, one-third of power would be saved. In the construction of roads, therefore, both speed and power are very often sacrificed to want of judgment or ignorance of these laws. A road, as every traveller

knows, is often continued directly over a hill, when half the power, with the increase of speed, on a level road around that hill, would pass over the same distance in half the time."

(To be continued.)

THE CUCUMBERS IN POTS AT CHISWICK.

In a long pit at Chiswick there are 117 varieties of Cucumbers growing and fruiting in pots, and producing fruit in the greatest abundance. It is a sight worth looking at, and those who are interested in the cultivation of the Cucumber would benefit by viewing this successful mode of culture.

Mr. Eyles was determined that this season the experiment of proving this great collection should not be at the mercy of the season's vicissitudes, and he accordingly arranged to have them grown in this manner.

The seed was sown on the 15th of May in a warm hotbed, and the plants were potted off into 48's. They were then shifted into 24's; and lastly, on the 11th of June, into their fruiting-pots, 16 inches in diameter.

The soil consisted chiefly of light loam, one-third rotten dung, and some burnt earth. They were then placed in a common brick pit, and trained to a wire trellis along the roof, each plant being allowed a single stem to reach the top of the pit, which was then stopped in order to produce side shoots, on which the fruit were all borne simultaneously. They have been frequently top-dressed with good rotten dung, and liberally supplied with manure water. The pit is heated by hot-water pipes, but they have only been used to prevent damp in dull weather and on cold nights.

When the Fruit Committee visited the collection last week they highly complimented Mr. Eyles on his success, and at the same time passed a vote of thanks to his excellent foreman Mr. Barron.

THE POTATO DISEASE.

A LETTER has appeared in the *Times* from a Physician, in which he wishes to prove that the above is caused by a want of attention to a proper rotation of crops. This, no doubt, will and does cause deterioration in most of our cultivated crops, although not always, as proved by your correspondent, who has seen early Potatoes every year for twenty years on the same plot. This want of rotation cannot be the cause of the blight from which we all suffer; and although I am not able to explain scientifically how, I am quite persuaded the cause is in the atmosphere. For several years I have noted that towards the end of July storms prevail, with strong lightning and heavy rain; the rain appears to me to be charged with electricity, and falls with a scalding effect upon the Potatoes, leaving on the leaves those small brown spots which speedily extend and destroy the plant. "In the morning they are green and flourishing, in the evening dried up and withered;" this I have seen now for several years, the storms at that season being followed by the same effect.

I have always paid strict attention to the rotation of crops, having Potatoes on the same ground once in four years. I have, this year, growing, Regents, Flukes, Fortyfold, and Ash-leaved Potatoes, and on the 22nd of July nothing could look better or more promising. I left home and returned again on the 26th; in the meantime the destroyer had been there. I was told by those at home that a peculiar-looking fog or blight appeared on the Wednesday, and they wondered whether it was the Potato blight; they had not long to wait, for the next day the fetid odour and the decaying tops were perceived, and now they are rapidly going. There was no storm in our immediate neighbourhood on that day, although prevalent in most other places. We may prepare our ground, select our manure, and even bake our seed, but while this pestilence walketh abroad, I fear very little can be done to check, and nothing positively to arrest the disease.

In the meantime, it may do good and give us data to go upon, if your correspondents in different parts will let you know when and under what circumstances the disease appears in their neighbourhood.—N.

I PLANTED a few Regents some time in April on a piece of ground which I made by levelling an old stream bank. On one part of the ground I had several barrows of an old granite

"burrow," as the miners call it. The granite, of course, was in a gravelly state, and the earth was put on the top. Now, where there is no granite the disease has carried off nearly all the tubers; but where the granite is the Potatoes are scarcely inferior in size, though the earth with it is very scanty indeed, and there is scarcely one diseased. They come out of the granite clean, smooth-skinned, and not one in five diseased; though the others, the same kinds and treated exactly alike in all respects, except the soil being different—viz., one part earth, and another part a little earth but mostly granite, are nearly all gone.

I send this merely because it struck me at the time, and it may, for anything I know, be worth a thought or two.—M. ANTHONY, *St. Ives, Cornwall*.

MILDEWED ROSES.

SOME time ago it was stated that water a few degrees warmer than usual had been found very beneficial for ordinary greenhouse plants; I therefore tried it for a time, but soon found the leaves of the Rose trees affected with mildew. Sulphur was used without success. I tried to think of everything that could possibly have caused this plague, but failed to discover it, and, being the first time it had made its appearance, felt anxious to trace it, to stop further mischief. The Rose trees were replanted, and carefully watered by myself as usual, but all still failed. Our greenhouse being badly ventilated, more air was given than usual the first winter, as the mildness of the season allowed of abundance; and this it was hoped might be a cure, but proved no relief. The following winter less air than usual was tried, as it was suggested the plants had been chilled, and were suffering from it. This, however, made no difference: the evil continued. We now despaired of improvement till the house was better ventilated (but this has not yet been done); till thinking over the likely and unlikely things that could in any way affect the health of the plants, it struck me the warmer water might by degrees have weakened it, and by doing so had induced disease. From this time I tried water as nearly cold as possible, and at the end of some weeks found the leaves perfectly free from any trace of the enemy, and they have remained so since.—Q.

POMOLOGICAL GLEANINGS.

PEACHES IN ORCHARD-HOUSE.—I enclose you a photograph of my new orchard-house, 50 feet by 30 feet, and wish you were here to see the fruit, which is now part of it ripe. Having discarded Early Anne and the Nutmegs, I find Early Grosse Mignonne and Early York the two earliest. They are beautiful with me now, and first-rate in quality. We gathered our first ripe fruit the 1st of August: it was an early Grosse Mignonne and a delicious fruit. I believe any one tasting Peaches here would acknowledge they are better flavoured where no fire heat has been used. When hearing the remarks of those who have tasted our Peaches, and seen the gratified expression of their countenances, I often think, Who would not have an orchard-house?—I. R. PEARSON, *Chilwell*.

[How do you find the ventilation in the centre of the house in one of that width?]

GREEN'S MOWING MACHINES.

I HAVE pleasure in informing your correspondent "R. F.," that my newly-improved steel chains, named in my previous letter, can be applied to the machines I supplied last season, though I admit I should have a doubt about a single steel chain standing, as the old wheel is not broad enough to admit of a chain of sufficient strength. I am fully aware that the chains proved a failure last season, but am anxious to oblige my patrons by remedying the evil, and am willing to make a sacrifice in doing so: therefore, I propose to make the following alterations and improvements in any machines sent to me that were supplied last season, for the sum of 15s. to 20s. according to size.

1st. I will take out the drum-shaft that carries the driving-wheel, also the cylinder-shaft that goes through the cutters and lengthen them, and I will put an extra wheel and pinion on each, and two new steel chains.

2nd. I will regrind the cylinder and put the machine in proper working order, and will warrant it to stand any reasonable amount of work.

If "R. F." or any other party that requires the above alterations will be kind enough to send their machines to my works at Leeds on or before the coming Christmas, they shall be duly attended to; but after that time I cannot guarantee, in consequence of their interfering with other work.—THOMAS GREEN.

AMERICAN BLIGHT.

"COMMON SENSE" has favoured you with a receipt for the destruction of American blight. My Apple trees were, the year before last, perfectly infested with it. I applied a scrubbing-brush and the blight nearly disappeared. The following spring it appeared in as full force as ever. Not disheartened, I again scrubbed my trees with the brush. This year the blight has almost vanished.

I attribute this result partly to the use of the brush, but mainly to the extreme severity of last winter's cold.—G. D., Birmingham.

ORNAMENTAL BRITISH PLANTS.

MENTHANTHES TRIFOLIATA (Bogbean or Marsh Trefoil), is a creeping plant of a glaucous hue, the stem and leaves being somewhat fleshy. Leaves, as the name implies, in three. The plant is only to be found in boggy swampy places, often inaccessible to the pedestrian. It flowers in July in the north of England, where it is more generally found than it is more southward. The flowers are of a delicate white, beautifully tinged with red, presenting a fringed appearance of great elegance, so much so that I know of very few plants more deserving of notice. Being allied to the Gentian, it is a strong bitter, and, I believe, has been used as a tonic with good results; and Hooker says has been used as a substitute for Hops. It is a plant easily discerned, being of robust growth, and the foliage is larger than that of Clover, but of a pale green almost approaching to white. Its delicately formed flowers do not remain long in beauty, and are only produced at a certain time, differing a little in accordance with an early or late season, generally in the north of England about a fortnight after the Wheat comes into ear. In some swampy marshes it is very plentiful, but it is not so common as many plants, and seems to delight in places of difficult access; but to the sportsman who makes the study of plants one of the objects of his taking to the moors, I would advise his looking out for this interesting one. It is also found occasionally, though certainly less common, on boggy ground where cattle graze, but its bitter quality preserves it from their touch.

PARNASSIA PALUSTRIS (Grass of Parnassus).—I do not know whether the classical name given to this plant is in any way connected with the district its name is derived from. Certain, however, it is, that in point of beauty it would do honour to any place. In England it is found in wet, marshy places, often struggling for an existence among rough grasses, sedge, and other herbage, thereby indicating that it likes shade. It is a small, low-growing plant, rarely exceeding 6 inches high even when in flower. Flowers large for so small a plant, and of a creamy white, the anthers giving it a neat and elegant appearance; and, altogether, the plant and flower is one of great beauty, and its flowering is spread over a more extended period than that of many. From July to October it is said to bloom, but August may be regarded as the most likely time to find it; and I should think it might be introduced into the flower garden if a suitable moist situation could be had for it with the necessary shade. In such a place it would certainly repay the trouble and become as interesting as the Forget-me-not, Anagallis, and other things of British origin transferred there, and there is also a possibility of cultivation improving it. See what has been done to the Carnation, the origin of which is also said to be our island home; but to the admirer of wild plants I would point out this as one of great beauty, and in situations like those described it is pretty plentiful.

NARTHECIUM OSSIFRAGUM (Bog Asphodel).—A small Grass-leaved-looking plant with a spike of yellow flowers. Pretty and interesting, it is seldom more than 6 inches high. It is often found on poor, wet ground, and, I believe, on elevated positions. The whole plant, including the flower-stem, has a hairy or woolly aspect, but the bright yellow spike of flowers, large for so small a plant, gives it an ornamental appearance. I think it is more frequent in the north of England than it is more southward, and,

unlike many marsh plants, it does not require that shade which makes so many of them difficult to find. I should think it might be improved by cultivation; and it is certainly not very choice of good ground, for I have seen large patches of it growing on a pernicious clay where nothing else seemed to live. It flowers in July and August.

PINGUICULA VULGARIS (Butterwort).—Like the Grass of Parnassus, Bogbean, and other pretty-flowering plants, this is found in damp, waste places. It is of humble growth, rarely if ever so large as a Primrose; the leaves succulent and shining with glands something like the Ice-plant of gardens. The flowers a bright blue, very conspicuous and beautiful, and by its compact habit would seem to repay cultivation. A larger variety, or, perhaps, species, *P. grandiflora*, has been cultivated for ornamental purposes in Ireland, but I am not acquainted with it; but the ordinary one, *P. vulgaris*, is plentiful and often found on very poor clayey ground basking in the full sun. Its leaves are said to coagulate milk, hence the name; but I am not aware of the plant being used in any way. As an interesting British plant of more than ordinary attraction, I certainly recommend the lover of such things to look after it, and if he reduces it to cultivation he will have added one of the brightest of blues to our flower-beds. With a plant of the habit of the common Daisy, more need not be said.

LYTHRUM SALICARIA (Purple Loosestrife).—A most handsome-flowering plant, growing by the sides of ditches and ponds, presenting a dense spike of flowers from 6 inches and upwards, long, on an upright stem from 2 feet to 5 feet, or 6 feet high, and forming a very conspicuous object in many places, being visible and easily discerned by a railway passenger travelling express speed. It has been introduced to gardens, but does not answer very well. Where the ground is dry the colour of the flowers is a rosy purple. Flowers in July and August, and is pretty generally spread over many counties. It is, perhaps, better known than many of our other plants, being second to very few indeed in point of beauty; and, unlike many others, its beauty is not hid from the eye of a general observer, but stands erect, overtopping most things near it with its crowded head of rich-coloured blossoms inviting a compliment rarely denied it.—J. R.

TREES INJURED IN AN ORCHARD-HOUSE.

I HAVE a lean-to orchard-house 30 feet by 13 feet, facing nearly south. There are old Apricot trees against the wall, Peaches, Nectarines, and Plums in pots on the north, and the same planted in the border on the south. On Saturday, the 27th ult., the trees were the picture of health and vigour. During the day there was a heavy shower of hail accompanied by rattling thunder and forked lightning, and a tree was struck by the electric fluid in the neighbourhood. About five o'clock in the afternoon my gardener fumigated the house with 1 oz. of tobacco burnt in a flower-pot, and then shut up the house till seven o'clock next morning, when many of the trees presented the appearance of a hot flame having passed over them. The tops of the Apricot trees on the wall were burnt up and died. The Plum trees and those on the border suffered most severely. The leaves have mostly fallen from the damaged trees; but the young shoots, with the exception of the top ones, are uninjured and growing well. The gardener says he simply burned tobacco without any admixture. I examined the flower-pot and found no residuum but the ashes of the tobacco. He remained in the house till the tobacco was consumed. The house is left open all day, and merely the door closed at night. The trees near the east door suffered most. Could this be the effect of lightning or of tobacco smoke, or can your experience assign any cause? The gardener, I believe, is quite trustworthy.—AN OLD SUBSCRIBER.

[It is just absolutely impossible that one or even four or six ounces of tobacco could affect the air in a house 30 feet by 13 feet, so as to kill the leaves and young shoots. Sulphur in some form or other must have been there.]

SHADING A CONSERVATORY OR GREENHOUSE.

IN the next issue of your valuable Journal kindly answer the following queries:—

1st. What kind of blinds (both as regards material and plan), do you recommend for a moderate-sized span-roof conservatory? My gardener does not like tiffany.

2nd. What creepers will grow most quickly and look most ornamental? Of course it is heated in winter.—CONSTANT READER.

[If your blind is to go outside on a roller, nothing is better than strong sheeting, linen, or calico. Tiffany will hardly bear the strain of the roller, but answers well if placed on frames and moved as wanted. For combining efficiency and economy, nothing answers better than thin book-muslin or Nottingham netting placed inside, either made to move like a common window blind, or with a piece made for each light and fastened top and bottom with rings, and in the middle too with riags if the lights are long. This will allow your creepers to grow without shading. If of thin gauze, the fierceness of the sun would be moderated, and yet the shade would not be too much in dull days, so that the blinds may remain from April to October. We use a little size ourselves. Under suitable circumstances we own to a favour for these book-muslin blinds fixed inside, and therefore independent of the weather. Very thin bleached calico would answer well, though it would soon be torn to strips out of doors.

The climbers that would suit you are *Passiflora cœrulea*, *cœrulea racemosa*; *Tecoma Cheriand* *jasminoides*; *Mandevilla suaveolens*; *Kennedya Marryatæ* and *nigricans*, &c.]

NEW AND RARE PLANTS.

PENTSTEMON SPECTABILIS (*Showy Pentstemon*).

Nat. Ord., Scrophulariaceæ. *Linn.*, Didymia Angiospermia. "A lovely Californian species." Flowers numerous, in a panicle, on a stem nearly 2 feet high. Introduced by Messrs. Low, of Clapton, where it flowered last May.—(*Botanical Mag.*, t. 5260.)

DENDROBIUM HILLII (*Mr. Hill's Dendrobium*).

Nat. Ord., Orchidaceæ. *Linn.*, Gynandria Monandria. Named after Mr. Walter Hill, superintendent of the Botanic Garden at Moreton Bay, who sent it to the Kew Gardens. Flowers white.—(*Ibid.*, t. 5261.)

GOMPHIA OLIVEFORMIS (*Olive-fruited Gomphia*).

Nat. Ord., Ochraceæ. *Linn.*, Pentandria Monogynia. It has also been called *G. decorans*. Native of Brazil, introduced by Messrs. Hendersons, Wellington Road Nursery. "It produced its panicle of bright yellow flowers in the Kew stove during May of 1861."—(*Ibid.*, t. 5262.)

CALADIUM BICOLOR, var. *VERSCHAFFELTII* (*Verschaffell's Two-coloured Caladium*).

Nat. Ord., Aroideæ. *Linn.*, Monœcia Monandria. Sent to Kew by M. Chantin, of Paris. "Upon the deep green ground of the blade of the leaf are numerous irregular blotches of a rich blood [almost carmine] colour, the largest of which are ocellated—that is, have little eye-like spots of green in their centres."—(*Ibid.*, t. 5263.)

CERINTE RETORTA (*Curved-flowered Cerinthe*).

Nat. Ord., Boraginæ. *Linn.*, Gynandria Monogynia. Hardy herbaceous plant 18 inches high. Racemes of flowers terminal, recurved; bracts large, blue; corollas yellow, tipped with reddish-purple; "leaves glaucous green, spotted like those of a Pulmonaria." It is a native of Caria, in the Peloponnesus, where it was found by Sibthorp; and in wooded places in Dalmatia, according to Viviani. Lovers of hardy plants will do well to rear this in the open borders of their gardens. It is [best treated as an] annual, may be increased by seeds, and should be planted in tufts. Our plant was raised from seed sent to us by Mr. Thompson, of Ipswich."—(*Ibid.*, t. 5264.)

CHYSIS AUREA, var. *LEMMINGHÆI* (*Lemming's Golden-flowered Chysis*).

Nat. Ord., Orchidaceæ. *Linn.*, Gynandria Monogynia. Named in honour of Count Lemminghe. Instead of the flowers being golden coloured they are nearly white or cream coloured, the lip only being tinged with yellow; purple or lilac blotches are on the sepals and petals, and dark purple streaks and spots inside the labellum. Sent to Kew from Hamburgh by Mr. Schiller.—(*Ibid.*, t. 5265.)

VINES FOR AN EARLY VINERY.

PLEASE to let me know the names of six of the best Grapes for an early vinery. They will be planted inside in a pit in the centre of the house, three white and three black. The fruit is

intended for sale, so you will, perhaps, give me the names of the freest bearers, best setters, and largest bunches?—JACK KETCH.

[Two Victoria Hamburgh and one Black Prince for black varieties. The whites should be two Buckland Sweetwater and one Royal Muscadine.]

THE NEW AND RARE VARIETIES OF BLECHNUM SPICANT,

Found in the Neighbourhood of Todmorden and some other Places.
(Read before the Todmorden Botanical Society, by the President, Mr. A. STANSFIELD.)

(Continued from page 360.)

5. *BLECHNUM IMBRICATUM*.—This I found last autumn in Walsden, near the top of Henshaw Wood, also in Staups valley. But it was found nearly twelve months before by Mr. James Horsfall, a little to the right of Walsden Church; and it is somewhat remarkable that it was found about the same time near Barnstaple, Devonshire, by our friend Mr. Jackson, formerly of Guernsey. Mr. Jackson's plant is certainly identical with that found by Mr. Horsfall, those found by myself being slightly different, and it is very probable they will prove another variety. It fruited in our fernery last season, and we have now plants from spores in the protothal state; we shall look after their further development with intense interest. Fronds ovate, 6 inches to 8 inches long, lobes ovate, turgid, very much imbricated, so as to make the frond almost appear double, as if the frond was superimposed upon another; fertile frond also imbricated, not much longer than the barren, having much the appearance of a fertile frond of *Lomaria nuda*. Rare, constant, and perfectly distinct.

6. *BLECHNUM CRASSICAULE*.—This was also found in Walsden by Mr. John Fielden; and I have again to notice the remarkable coincidence, that it was also found about the same time near Barnstaple by Mr. Jackson. In general resemblance it approaches the imbricatum, but is still distinct; the lobes are not quite so much imbricated, or so convex, as in that variety, and the whole plant has a smoother and softer aspect. We shall look forward to the development of its fruiting fronds with much interest. New, and very rare.

7. *BLECHNUM PROJECTUM*.—This extremely curious variety was gathered by Mr. James Horsfall in September last, between the head of Lochlomond and Ben Lawers, in Scotland. Fronds smaller than the common type, but thicker and more coriaceous; many of the lobes are abbreviated or altogether wanting, whilst others are projected beyond the usual length in the most heterodox manner. It was designated by the discoverer as the ugliest Blechnum he had ever seen. I have little doubt but its irregularities will be permanent under cultivation; and if so, it will prove a highly interesting variety, from the many freaks it will play. It is new and extremely rare.

8. *BLECHNUM RAMO-DEPAUPERATUM*.—This was also found by Mr. James Horsfall, last September, on the Clova mountains, in Scotland. Fronds about the length of the common type, variously branched terminally, lobes much depauperated downwardly. New and very interesting.

9. *BLECHNUM CAUDATUM* (Moore).—I gathered some good plants of this very rare Fern in September last, by the side of an old lane in Eastwood. Fronds from 6 inches to 8 inches long, entire or caudate for about one-third the distance from the apex, gradually enlarging in breadth to the middle of the frond, then suddenly contracting downwards to about one-fourth of an inch in breadth. Fronds thick and leathery. A new and very extraordinary, unique, and rare variety.

10. *BLECHNUM HETEROPHYLLUM* (Moore).—A solitary plant of this variety was found last October by Mr. Thomas Stansfield. Fronds exceedingly varied; some nearly normal, others depauperated throughout, others again have pinnæ projecting beyond the margin, intermixed with abbreviated and normal ones. It is altogether an extraordinary and rare variety, and quite permanent under cultivation.

11. *BLECHNUM TRIDACTYLOX* (Moore).—This variety was also found in October last by Mr. Simon Nowell, in Tower-clough, near Portsmouth. Fronds shorter than in the species, more fleshy and coriaceous; some of the fronds entire at the ends, or slightly cordate, others divided into three-finger-like processes: hence tridactyloa. It is a new variety, and, should it remain permanent, will be very interesting.

12. *BLECHNUM SINUATUM* (Moore).—This is a tall-growing

Fern, with the pinnae much abbreviated in the lower half of the frond; so much, indeed, as to run into simple sinuosities. I gathered it last season, in Staups-cloagh.
(To be continued.)

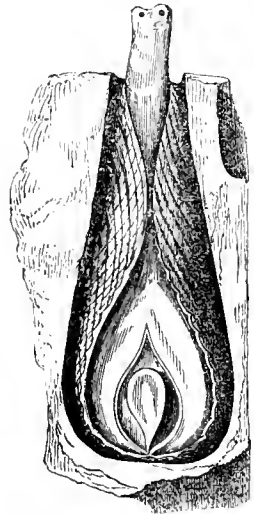
WHAT TO LOOK FOR ON THE SEASHORE.

(Continued from page 282.)

MOLLUSC.

XYLOPHAGA, OR WOOD-EATERS.—These creatures are also members of the *Pholas* tribe, and are so similar to the *Teredines* both in their form and habits, that a distinct and particular description of them becomes unnecessary. They penetrate, in the same manner as the Ship-worms, into the substance of timber which has been for any length of time under salt water, forming receptacles for their lodgment there; these receptacles have one orifice only, and are altogether destitute of anything like a shelly deposit. The only method which has been discovered of protecting ship-timber from the ravages of these destructive little creatures, is by studding the surface with broad-headed iron nails; in a very short space of time the iron becomes oxidised by the action of the sea-water, and the wood is speedily and thickly coated with rust, to which it would seem the Ship-worms have an invincible antipathy.

PHOLAS, OR BOREE.—This creature may be looked upon as the type of the tribe, and is certainly one of the most singular animals in the whole range of marine zoology. The shell is a bivalve, and contains a creature of an ascidian conformation, having a long tube, or rather two tubes, or syphons, placed close together on the principle of a double-barrelled gun. The *Pholas* is not only found in submerged wood, but in hard clay, chalk rocks, lime, and sandstone. On the south coast of England it is very common, and its shells are found in wonderful profusion. If any piece of rock running well out to sea be examined at low water, it will be found perforated with holes: these are caused by the *Pholas*; but how so small, and, to all appearance, powerless a creature can effect this perforation is as wonderful as it is up to the present time incomprehensible. The celebrated French naturalist, Reaumur, was of opinion that they work their way

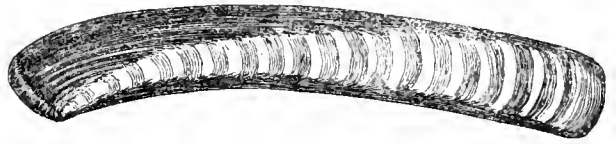


into limestone and similar substances by the perpetual rotation of their valves, which thus act like a rasp. But this is anything but a satisfactory solution of the mystery; for, in the first place, the shell is not hard enough to act as a rasp, even if all the shells of the species were furrowed, which is not the case, many being quite smooth; and, in the second place, if the hole were bored by the action of the shell, it would be uniform and almost circular: whereas it is found to be perfectly conformable to the shape of the shell. But by whatever process the boring is effected, it is generally admitted that the creature insinuates itself into the substance in its young state, and increases the cavity as it increases in size. In Normandy the *Pholas* is considered a great luxury, either dressed with herbs and bread-crums, or pickled with vinegar.

We must not overlook one remarkable peculiarity of the *Pholas*—namely, its phosphorescent property. It contains a liquid which shines with extraordinary brilliancy in the dark, and imparts a light to whatever it touches, it is even said to illuminate the mouth of the party who eats it. It is the more remarkable, also, that, contrary to the nature of other fish, which emit light only when approaching putrescence, even *Pholas*, the fresher it is, so it is the more luminous; when dried, however, salt or fresh water will revive the light, although spirit instantly extinguishes it. I hardly like to be presumptuous enough to hazard a conjecture; but may there

not be some peculiar property in this very liquor which may assist the creature in its task of boring? perhaps it may contain some active principle which tends to soften the wood or stone, and so to facilitate the difficult process.

SOLENSIS (Razor Shell).—This is another burrowing species,



having a long, straight, oval shell. It is found in large quantities on most sandy shores, where it sometimes buries itself to a depth of 18 inches or 20 inches, and generally near low-water mark; it is very frequently, however, much nearer the surface, that it may be able to project its tube from the sand. The hole in which it dwells is perpendicular; ascent and descent being its only modes of locomotion. It is at the ebbing of the tide that it descends, rising again as it flows out. The retreat of the *Solen* is easily distinguished when the tide is out by a small hole in the sand, and there are two or three methods of capturing its tenant. If some salt be put into the hole, the irritation causes the creature to ascend, and if the hunter be quick he may secure him; but, if it contrives to descend again, it would be useless to repeat the attempt, for the cunning Mollusc has retreated to the extremity of its burrow, and the salt would never reach it. Sometimes they may be dug out of the sand by spades; but the ordinary means adopted by the fishermen who seek them for food or bait, is to plunge a thin, barbed iron rod into the hole, when, if good aim be taken, the creature is harpooned and dragged out; but, if it be missed the first time, it is useless to try again, for, as in the case of the salt, the *Solen* on being aware of the proximity of an enemy, burrows far away out of reach of a second stroke. It would seem strange, by the way, that salt should annoy a creature whose entire existence is passed in a residence saturated with salt water, and which must derive its nutriment from the impregnated element.

MYADÆ (Gapers).—This tribe is more widely distributed than any other of our native Molluscs, there being no less than fourteen British species, but it will not be necessary to individualise each one of them. They have strong oblong shells, gaping in some species at one extremity only, in others at both. They all of them bury themselves in the sand, at such a depth only that their tubers can be conveniently protruded above the surface. They are said to be very palatable eating, and are sought for for that purpose on many parts of the coast.

One species, *Mya margaritifera* (Pearl-bearing *Mya*), which is vulgarly known as the *Pearl Mussel*, has been known to yield pearls of very considerable value, and it is by no means uncommon now to find pearls in these shells which will bring from 20s. to 30s. each.—W.

(To be continued.)

VARIATION IN PLANTS.

As there has been a great deal said lately in our pages about variegation in plants, we take the opportunity of publishing the following views of Dr. Morren, Professor of Botany at Liege, on the subject. They were published originally in "Dodoneæ, ou Recueil d'Observations de Botanique." Brussels.

When we see a form of variegation strictly confined to the nerves of the leaf; when we see the discoloured tissue abruptly limited to the median nerve, we are led to infer that here there exists an action which depends on the fibrous system. We are confirmed in this opinion when we observe those beautifully reticulated leaves, in which the whole fibrous network is white or yellow, while the intervening spaces (intervenum) remains green. But when the number of examples brought under consideration becomes multiplied, the frequent examples of leaves which are marginate, or bordered, or zoned, or discoidal, or fasciated, or variegated at the ends, present facts which could never be made to accord with this hypothesis. In the leaves which are fasciated, and those which are variegated at the end, the nerves like the intervenum, are distinctly cut by a discoloured part, and the transition is abrupt. It would, therefore, seem impossible to admit that this phenomenon of variegation is caused by any excess of air forced into the leaf by the pneuma-

tophorous vessels, when the root itself would, in too poor a soil, take up more air than sap. One might think so, as respects the leaves described under the names of maculo-variegate, reticulate, vittate, marbled, and half variegated; but the marginate leaves alone would overturn this theory.

The nature of our studies has naturally led us to submit the whitened tissues to a microscopic inspection, for it has appeared to us essential to examine first the differences of tissue, which might exist between the parts which are green and those which are variegated, and then seek for the cause of this strange phenomenon. We cannot here review all the features of the anatomy examined; besides the constant similarity which they presented leads us to think that the cause is the same under all circumstances. We, therefore, confine our remarks to *Cornus mascula*, *Euonymus japonicus*, and *Syringa vulgaris*.

Cornus mascula offers nothing particular either in its superior or inferior dermoidal system. Its malpighiaceus hairs present the same aspect both on the variegated and the green parts. It is not so with the diachyma; this presents an important modification in its upper mesophyllar system, which has its intercellular passages quite full of gas or air, while at the same time the granules of chlorophyll become blanched. We do not say that the air or gas is contained in lacunæ or air-cells, for this

prisms of the superior mesophyll are detached from one another, having air between them at their six angles (fig. 3), so that the passages are free from that intercellular substance which elsewhere binds the cellulæ to one another. With this development of air, or gas, or æiform fluid, the nature of which is unknown, is a corresponding whiteness of the interior chlorophyll. But we regard this phenomenon as of less importance than the secretion of the air between the cellulæ.

Euonymus japonicus, variegated; the cellular tissue of the superior mesophyll, seen from above.

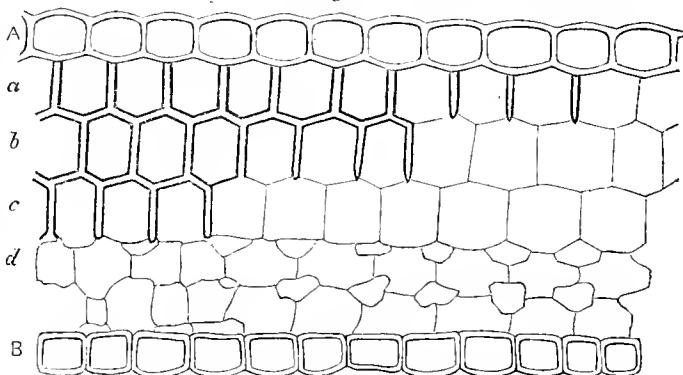


Fig. 3.

as with many others, there are several hues which constitute that form of variegation which we have called marbled. Some of these tints are pale green; others greenish-yellow, here pure yellow abounds, and there we have pale or clear yellow; at last there is a pure white, and a brown colour, which indicates a carbonisation of tissue. Now, whence arise these varied tints, proceeding from the green to the white, by numerous intermediate shades?

We have dissected such a portion (fig. 4), and the anatomy will soon explain this phenomenon. The discoloration of the chlorophyll, and the formation (secretion) of the air between the cellulæ, the emphysema*—since we must here call the malady by its own name—only affects the cellular tissue of the superior mesophyll layer by layer. It follows that the first layer diseased is the superior; the second, that which comes below it; the third, that further down, and so on. We may, therefore, perceive why the pale green tint is only the index of a slight superficial commencing emphysema; why the greenish-yellow tint indicates emphysema of several layers; in short, why the total discoloration is also only the result of a general emphysema, which has spread throughout the whole diachyma.

Fig. 4.



Syringa vulgaris; section of a variegated leaf of different tints; A, superior epidermis; B, inferior epidermis; a, cells of the first or upper emphysematous layer; b, cells of the second do.; c, cells of the third do.; d, cellulæ of the inferior mesophyll.

part of the diachyma has no proper air-cells (fig. 1, e). The small prismatic cellulæ are a little contracted or drawn in, in order to admit of the air lodging in the intercellular passages, which thus exist indited by an æiform fluid, to the number of six around each cellule. When the decoloration is complete, the same phenomenon takes place in the inferior mesophyllar system (fig. 1, f), which is naturally pierced with air-cells answering to the pneumatic compartments of the stomatic apparatus. Ordinarily, one portion of the superior mesophyllar system is affected with this secretion of air, while the inferior is still healthy.

The *Euonymus japonicus* is still more fitted to prove that variegation has its cause in the presence of air in the passages of the diachyma. The superior and inferior dermoidal system, the inferior mesophyllar system with its cellulæ, and air cavities remain the same, with this difference only, that the globules of chlorophyll are green in the healthy leaf, and discoloured in the variegated (fig. 2).

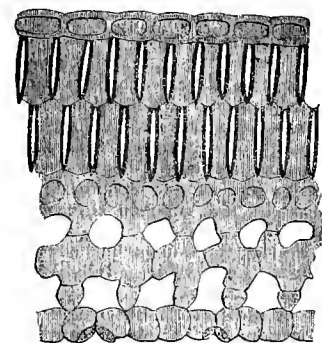


Fig. 2.—*Euonymus japonicus*; section of a diseased, or variegated leaf.

The superior mesophyllar system is alone changed. On one side, in the healthy part the cellular prisms (prismenchyma) firmly adhere to one another by the enchyma, or the intercellular substance which agglutinates all their partitions together. The result is, that here there are no intercellular passages, and, consequently, there cannot be any air between the cellulæ. On the other side (fig. 2) the cellular

According to these views we must conclude that the double cause, which in one part discolours the chlorophyll, and in another encloses air in the intercellular passages, which nominally are not destined to retain it, acts from above downwards—that is to say, it commences in the mesophyllar system, which is destined for the rejection of substances, and may be regarded as exercising the function of secretion. We have examples in the gum, resin, &c., which varnish the upper surface of leaves. Moreover, it is this surface which receives most light and least humidity when the rain does not fall directly on it. These observations naturally lead the mind to seek, in the effect of respiration, the cause of the phenomenon of variegation, which, on a close examination, is found to be only an emphysema of the cellular tissue.

M. Sageret, who made several very interesting experiments on

* A collection of air in the cellular tissues.

variegation,† attributes this phenomenon to several causes though he has not sought to resolve the question by an anatomical examination of the variegated parts—an essential point in a case of pathology, in which it is of the first importance to know the seat of the disease. According to this botanist, these causes would appear to be as follows:—

1. "The seed being too old, imperfectly ripe, defective conformation, &c."—Here it is not clearly stated how these conditions should produce variegation; the affirmation is vague, because it explains nothing.

2. "Variegation in the parent plants."—This fact is true; we have seen proofs of it in several gardens.

3. "Accident, or injury from insects."—Here we must remark that the difference of colour in a leaf pierced by an insect, or which is used as its nest, is not a true variegation. This phenomenon is local, and caused by a degeneracy or death of the tissues, as in the growth of epiphyllal cryptogams on the green parts of the plants. Most frequently, the yellow tint which we observe on Pear and Apple trees, &c., is only an indication of the death of the tissue.

4. "Hybridation with a plant not variegated by the pollen of one variegated."—Here we must understand illegitimate crossing (impregnation taking place between two varieties of the same species), and not true hybridation (impregnation between two different species).

5. "Imperfect impregnation, in consequence of immaturity of the pollen;"—perhaps, more properly speaking, by the difference of coloration in the pollen, as has been observed in the production of the striation of the corolla.

6. "Contagion inoculated by the graft."—This result is placed beyond all doubt by daily experience.

To these we shall add one or two others.

7. Growth of the plant on a warm, arid soil, impregnated with air. The facts cited by M. Treviranus have been fully confirmed by what we have seen in every garden where there are trees with variegated leaves.

8. Propagation in dry weather. The fact cited by Miller belongs to this category of causes; and M. Sageret himself says, that budding, layering, twisting, ringing, and tying, have produced variegation. We think these are secondary causes, and that with them there is a certain concomitant motion in the respiration so active that it is followed by emphysema in the secreting tissues. This last condition, which is fulfilled by exposure in a warm, aerated aspect, and an arid soil has been entirely neglected by observers. It could only be detected by anatomical experiments on the plants, and but few have paid attention to the dissection of tissues.

9. The destruction of important organs of nutrition, by animals or other causes. The facts mentioned by Burgsdorf, are to be explained by excess of the respiration directed to the surviving parts of the plant.

After this exposition of facts, it appears that:—

(a) Variegation may be regarded as a malady.

(b) That it has its source in the cellular tissue of the diachyma.

(c) That it attacks especially the superior mesophyllar system, and spreads by layers, always from above downwards, so as to extend sometimes to the whole of the diachyma.

(d) That it results from emphysema without puffiness (*emphyseme sans boursofflure*); on the contrary, with contraction of the tissue usually filled with elaborated sap.

(e) That this emphysema is confined to the intercellular passages, the intercellular substance or enchyma being replaced by air or gas, the nature of which is unknown.

(f) That this emphysema causes the discoloration of the granules of chlorophyll contained in the cellules of the variegated diachyma.

(g) That the variegation is always produced according to a certain number of types, which are repeated throughout numerous different orders and species; and that all variegated leaves may be distinguished by the following terms:—1, margined; 2, bordered; 3, discoidal; 4, zoned; 5, spotted; 6, reticulated; 7, striped; 8, marbled; 9, variegated by half; 10, variegated at the point; 11, fasciate; 12, entirely discoloured.

(h) That this last phenomenon constitutes albinism or complete whiteness in the leaf, and is never reproduced from seed; so that it is an individual malady.

(i) That the occasional causes of variegation are numerous, and have their source in many assignable conditions.

(j) That variegation is closely connected with disturbed vegetable respiration, and that consequently, it is to plants what pulmonary emphysema is to animals: with the former, its seat is in the leaves, which are the true lungs of plants.

(k) That in this it is necessary to distinguish general emphysemas which affect the whole plant from local variegations.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Broccoli, where there has been any planted between the Peas, the latter should be removed as soon as they are done with, the ground should then be dug, and the intermediate spaces filled up. *Cauliflowers*, the plants which are now coming in to be liberally supplied with water to cause them to form close heads. *Cherrie*, make a sowing for autumn use. *Endive*, continue to transplant as circumstances may require. Another sowing may also be made. *Lettuce*, keep a succession sown and planted; they will now require a liberal supply of water to make them eat crisp and fresh. Keep the ground between all crops frequently hoed, both to keep down weeds and to retain moisture by pulverising the soil. Stick and earth-up the late crops of Peas and Scarlet Runners, and cut any herbs that may yet remain out.

FLOWER GARDEN.

The cuttings of choice Hollyhocks to be put in, as those rooted about this time will make strong plants for next season. Attend to the tying of them and Dahlias, and go over the masses of Verbenas, &c., frequently for the purpose of regulating their growth. Sow immediately Ten-week and Intermediate Stocks for spring blooming.

FRUIT GARDEN.

Give attention to the preservation of wall fruit from birds and insects. The bean-stalk earwig traps to be frequently examined. Haythorn's hexagon netting can be employed with advantage to protect Green Gage and other Plums, a precaution the more necessary from the scarcity of fruit this season. Look carefully over Peach and Nectarine trees, and remove nails that press too closely on the fruit or branches. In stopping and arranging the wood let only as much as can conveniently be laid in be allowed to remain with sufficient space for the influences of the sun and air to accomplish the perfection of the fruit and the ripening of the wood. Apples and Pears, both on walls and espaliers, to have their second growth spurred in, and the leading shoots nailed or tied in as they require it. The lateral growth of Vines to be removed and the shoots spread out as openly as possible, they will need all the influence of the sun to attain to maturity. The sooner the new beds of Strawberries are planted the better. All stone fruit to be gathered as soon as ripe, as they seldom, if ever, improve when left to get over-ripe, and they will keep a day or two longer in a cool place than on the walls.

STOVE.

Continue to top up the late growth of Orchids, and to keep the plants at the warmest end of the house. Give air freely in the early part of the day, and on very fine mornings syringe occasionally the whole of the stock. A little fire heat to be kept up in the day if only for the purpose of insuring a circulation of air with a decrease of temperature during the night. Give every encouragement to the hard-wooded spring-blooming stove plants to ripen the wood while there is sufficient sunshine for the purpose, as the short, sunless, damp days and long nights are approaching fast.

GREENHOUSE AND CONSERVATORY.

Chrysanthemums to receive their last shift, using fibrous loam to produce a stiff habit, and to preserve their leaves; liquid manure to be applied liberally when the flower-buds are formed. Successions of Brugmansias, Clerodendrons, Euphorbias, Poinsettias, &c., to receive a last shift to produce a fine display in the conservatory. Climbers on ornamental trellises to be cut back for the purpose of producing a succession of blooms late in the season. The winter-blooming plants of common character, such as Cinerarias, Heliotropes, Roses, Verbenas, &c., to be potted on if they require it. Scarlet Geraniums bloom best when they are somewhat potbound. Look very carefully after the Lævulias, and keep them clear of their great enemy, the black thrips, giving them plenty of water at the roots, and an occasional supply of weak clear manure water to old plants that may not be growing freely until they have made plenty of wood to insure an abundance of bloom; but manure water should not

† Sur le Moyen de faire naître les végétaux à feuilles panachées. Hort. Belg., 1856, p. 145.

be given to young specimens in vigorous health, as it is apt to induce a too gross habit, in which state they seldom or never bloom freely. Attend to the Cinerarias for early blooming, with shifting, &c., as may be necessary, for if large specimens for winter blooming are wanted they must not be allowed to sustain a check after this time; also, take off suckers as they can be obtained, and pot them off for spring blooming.

PITS AND FRAMES.

The propagation of the stock for next season to be commenced at once, so as to have a lot of strong, well-established plants before winter, and without the necessity of keeping them so close and warm as to induce a weakly and watery habit of growth. To be able to winter bedding stock safely with ordinary care, it is necessary to put in the cuttings sufficiently early in the autumn to allow of having them well established and fit to be exposed to the open air for some time before they are housed for the winter.

W. KEANE.

DOINGS OF THE LAST WEEK.

OUT OF DOORS.

PLANTED out Lettuces, Cauliflowers, Endives, &c. Moved off early Peas, that the sticks might be obtained for late sowings, putting the haulm in sheds to get the seed knocked out on a wet day. Raised early Potatoes, there being just a symptom here and there of disease, that the ground might come in for Onions, Turnips, &c. Took up Potatoes also, where Savoy's had been planted between the rows, to help the plants by the forking, and give them the ground for themselves. The early *Ulm Savoy* is a nice, compact, small kind, forming nice, firm heads even now, when other kinds are nothing hardly but a mass of leaves as yet. The week of dry weather has been of service to all crops. Dwarf Kidney Beans show signs that they will need a good soaking to keep them in continuous bearing. Sowed some in pots to be moved under protection as the weather gets cold. Sowed also Spinach, of the prickly and Flanders kind; also Onions, and a pinch of Cauliflower, to come early, deferring the main sowing for the spring crop until the end of the month. Forked slightly and watered freely with weak manure water rows of Peas, and very freely beds of Celery, and cleaned the plants of suckers, placing a dusting of dry soil over the beds after being watered a few hours to keep the moisture in. If the weather continues dry will throw mowings off the lawn along the rows of Peas to keep them moist. Nipped or clipped off pods getting too old for use, and placed them in a house to dry. These, though old for the table, are hardly old enough for seed if shelled at once, but they will mature themselves in the pods. Watered Globe Artichokes to cause what the frost left to bear more plentifully. Pruned and watered Vegetable Marrows bearing plentifully. Have not met, but would like to have, the bush Custard Marrow. Our Custard grows with rather too much luxuriance, and, in fact, on the whole, is more luxuriant than extra fruitful. Regulated and pinched Cucumbers, and turned, or rather made a lining to Cucumbers and Melons in frames, taking care that the soil was so hard pressed against the sides as to prevent any steam entering from the mixture of dung and lawn mowings used.

Nipped the points of Pear and Apple shoots. Of fruit we have a very scarce crop. Regulated and fastened shoots of Peaches and Apricots; netted Florence and Morello Cherries, Currants, Gooseberries, &c. Syringed Plums and Cherries, especially the latter on being cleared, with sulphur lime water. Watered a few trees planted in spring, and which the sun seemed to be distressing. Cut off Strawberry-runners laid in pots, to be repotted shortly for forcing; and as soon as possible will clear the Strawberry-beds by removing all runners, and even some of the smaller buds on stools above two years old. What is dug down will come in for Broccoli, that is now standing thickly pricked out in beds.

HOUSES.

Looked over vineries, picking out any decayed, and also removing a few scalded berries from a late house, chiefly Muscats. A few berries will be apt to be thus scalded, even with plenty of air given early, if the glass is not without spots, and especially if very bright sun succeeds a period of dull weather. Syringed and watered the early Peach-house, and top-dressed the surface of pot fruit trees in the orchard-house, watering the ground also, to keep the surface of the ground moist, and thus keep the house cool. By-and-by we will let it get warm to promote heat and the

hardening of the wood. Just raised the pots to arrest the growth of any roots that might be protruding. Regulated Melons in pits, thinning out extra shoots, and raising the fruit on inverted saucers, and slightly sprinkling the foliage about half-past three o'clock in the afternoon, and shutting up close for an hour, and giving a little air at night if warm enough. The above applies to cases where the fruit is set. When just in bloom air is kept on night and day, and the atmosphere kept in a dryish state. If fruit swelling and ripening need moisture, that is given to the roots by drain-tubes left on purpose, or by making holes for the water to get down by, without wetting the surface. A slight dewing in a warm afternoon will do them good, if the air is not taken away. If shut close the fruit will be apt to crack. Figs bearing copiously have recently required a little extra care. Those swelling freely are apt to decay or ripen faster than when wanted if much water is given, and then, on the other hand, if the plants get at all dry the second and succession crops are apt to suffer. When there are rather more Figs than can be used as fast as they ripen, it is a good plan to give plenty of air night and day then, to keep the house cool, and when the glut is nearly over to water well and give air still. This will bring on the next forwardest, and the succession will not be injured. If a few dull days come a little fire heat will bring them in very fast after the watering. But after all, when it is found that a good surface watering would make the ripening fruit damp or mouldy, and withholding it would starve too much the advancing crop, it is a good plan to make holes for the watering as mentioned above for Melons. Failing that, when after bright weather, and a good watering in the usual way, dull weather for several days has succeeded, we have found it a good plan to strew the bed or floor with dry soil or dry old Mushroom-dung. This leads me to say, that we have made our first bed in the Mushroom-house, about 6 inches or 7 inches deep, and have just spawed it and beaten it down. The beds made in the thatched open shed have done admirably. They will succeed very well in the house after this, unless this and the following month be extra warm indeed.

Plant-houses now require constant care in potting advancing plants; repotting or top-dressing Camellias, Azaleas, &c.; repotting and giving rich surface-dressings to such ephemeral plants as Balsams and tender annuals, which are very interesting whilst they last. Almost all the crops of Pelargoniums are now removed out of doors, but even the earliest are hardly dried and ripened enough yet to be cut down, or rather pruned in. A score or two of young ones have been nipped in and repotted for autumn blooming. A lot of Scarlet Geraniums have been done the same way. Even these Scarlets in the conservatory now can hardly be recognised as belonging to the same kinds as those in beds out of doors, the trusses being so much larger and the colours so much brighter. If we were certain of having such dull dripping seasons as the last, and wanted to have Scarlet Geraniums at their best on a grand scale, we must either plunge them well established in pots, in beds, and either so plunge them or plant them out under a canopy of glass, with plenty of air all round, so that they could get all the heat and light the season could give us, and be completely under our control as respects moisture. What little I have seen in this way leads me to imagine the effect would be magnificent. We know some who think and say there is nothing in flowers at all comparable to the glory of the different Scarlet Geraniums well bloomed, and we hope they will take the patent we freely offer, and have a simple glass covering full in the sun for their Scarlet Geraniums. I need not say how by a system of bordering, such a glass-covered promenade of Geraniums might be made to combine what was dazzling in gorgeousness.

Top-dressed Fuchsias with a little old Mushroom-dung, cow-dung, and a little soot, to keep large plants in vigorous bloom a month or so longer. There is nothing better for this purpose than a little superphosphate of lime dusted over the pot, and a little fresh soil put over it to conceal it. A quarter of an ounce might be placed on an eight-inch pot, and so on in proportion. The virtues are washed into the soil very gradually, and no harm will be done. I generally manage to get a bag in the twelve-month; but this season the manure merchant sent me guano instead, which not only costs much more, but is a far more gingery affair to handle if genuine, for the above amount would be apt to cause the finest Fuchsia to drop all its leaves. If used at all it is best used in the liquid form, and then 1 oz. to four gallons is strong enough for anything.

Kept potting Calceolarias and the fine-leaved Begonias, and

propagating the latter by leaves and strips of leaves, as has been previously detailed, the whole leaf making the quickest and strongest plant, but cutting the leaf into strips being the best mode for quickly securing a number of plants. When mere beauty of colour is the great thing, these fine-foliaged plants have much about them to recommend them even above the finest dowering plants.

LAWNS.

What has taken up the most time of the week, however, has been getting the pleasure-grounds and flower-beds all in trim order, in expectation of a great general visiting party. Grass-edgings round the beds were all to cut, plants to tie up, others to peg down, others to secure by sorts of go-betweens, and a large lawn, all to be nice and yet neither too long nor so short, stumpy, and hard as to remind one of a cutting that morning or the day before. There was early cutting, therefore, by the scythe in the morning, and machine cutting during the day. Most of it finished the best part of two days beforehand, so that all should be green, short, and smooth, and not retain the mark of scythe, machine, or roller. Lawns in this state are as much a luxury as the finest Turkey carpet, and I feel quite sure are more enjoyed than ever carpets could be. To see the graceful elastic steps of many fairy nymphs on such a lawn, without saying a word about their gentlemen companions, makes me always sorry to see "Keep off the grass" written on large cards, not only at places of general intercourse, but even at places where the numbers visiting never could do the grass any harm. It is a poor, costly thing to keep a lawn to look at; better lay it down in wood or stone, and paint it the required verdure tint at once. In public places where the lawn is small, vast multitudes might trample it too much, or wear it in lines and little pathways. But in all ordinary places, and especially in gentlemen's grounds, such notices should be broken up and pitched beneath the heating-kettle. If thousands traverse the finest rolled walks, if the walks do not become rough, they will at best be hard to the feet, and convey no more pleasant impression than walking on the highway, or the heated flagstones of our public streets. There is to every denizen of our towns a rich luxury in planting their feet fearlessly on a fine, elastic piece of short-cropped lawn. Vast numbers now and then on fine dry days, when most enjoyable, will almost be as good for it as a good rolling, and, therefore, let them enjoy it to the full under such circumstances, without these tempting and annoying notice-boards, as if English men and English women could not do what was right without these everlasting reminders, that they were only puppets in leading-strings.

Have commenced collecting soil from the sides of highways, &c., to begin propagating plants for flower-beds for next season.—R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications.

We cannot reply privately to any communication unless under very special circumstances.

MARKETS (*M. Anthony*).—We do not see any service there is arising from publishing the market prices of fruits and vegetables, as it is impossible to obtain correct returns of the prices returned to the growers, which is the information you want. If we were to tell you that Peaches were fetching in Covent Garden 10s. to 15s. a-pound now, and upon that representation you sent yours all the way from Cornwall expecting to get the same return, you would be disappointed. The best way for you, or anybody else who has produce to sell, is to write to a salesman and ask him what price he can return you. The large price made of Potatoes in Lancashire to which you refer, was in one of those years when the disease was so bad.

VINES IN POTS (*B. H.*).—The following you will find the best for pot culture:—Black Hamburg, Royal Muscadine, Steward's Sweetwater, Black Prince, Chasselas Musqué, Early White Malvasia. You can plant out your Strawberries after being forced.

"A LITTLE MARKET-GARDENER" (*H.*).—The correspondent who furnishes the communications under this title is really "A Little Market-Gardener" himself. As soon as this busy season of the year is over, we have no reason for believing that he will not resume his communications.

DISEASED FRUIT TREES (*W. H. H.*).—Your soil is the worst imaginable for fruit trees, and is literally at the root of all your troubles. First of all, your stations are far too shallow; 10 inches to 12 inches below the surface is far too little. They should not be less than 20 inches. Deepen them, and fill them with fresh soil taken from a loamy pasture. What in the world do you put peat and leaf mould to fruit trees for? Plant them in good turfy loam and nothing else. You will find them all do well in it. You may train your trees in every possible shape you can imagine, even in the fanciful one you sketch on your letter.

DYING FLOWERS (*F. B. Kensington*).—After you have dried the flowers between sheets of paper, procure some sheets of cartridge-paper of the size you require, and arrange your specimen or specimens, as the case may be, on the sheet. Have ready a few strips of paper gummed at the back, and fix these transversely across the stems, leaves, or flower-stalks of your specimens, using as many as are necessary to secure the specimen in its position. Some people gum the whole specimen on one side and fix it entirely to the paper; but this is an objectionable way, as it effectually prevents the removal or re-arrangement of the specimens.

VARIEGATED ALYSSEUM (*H. B.*).—Yes, it will keep in a frame or hand-glass like *Calceolarias*. But do not think the efflorescence on the pot a very serious objection. Rub it off the same as you would green mould, or any other dirt.

PLANTS WANTED.—Can any of our subscribers inform us if the following plants are yet in cultivation?—*Primula sikkimensis*, *P. capitata*, *P. Stuartii*, and the scarlet Brazilian Pine Apple.

CARNATIONS DESTROYED BY WORMS (*H. C.*).—There is little doubt but that your Carnations are destroyed by that pest the wireworm, the larva of a species of beetle (*Elater*). The only remedies are frequently digging the ground, and hand-picking them, being yellow they are easily recognised, and laying pieces of Carrot or Potato on the ground near the plants. In a week or two we shall say something about Carnations in general.

CUTTINGS OF *LEPTODACTYLON CALIFORNICUM* (*Carolus*).—These will root as freely as *Verbena* cuttings if they are made at the proper time, or when the "wood" is in the right state. Did you never hear that the common *Hydrangea* will not root from cuttings when the young wood is on to the flowering state? If you feel the flower-bud just getting hard without being yet seen, that shoot would try your patience and your temper to cut it among Cucumbers; but, and if there was no sign or move for a flower, the *Hydrangea* would root in seven days in smart heat. Now there are scores of plants of that mood, and your *Leptodactylon* is one of them. Your cuttings were made of the flowering-wood, and they would not budge. Why should they till they taught you a lesson you will never forget? See what we have said about markets and drying plants to two other correspondents.

CONSTRUCTION OF PIT (*A Subscriber*).—First of all, we must in all friendliness tell "A Subscriber" that our engagements are such that we cannot refer to an old Number of 1848 to understand the plan he refers to. We can refer to nothing for which volume and page are not given to us. We like to be fair and aboveboard, and therefore say at once we will not do the work which our correspondents should save us. All references, therefore, to late volumes, &c., will be disregarded by us unless chapter and verse are given. Now, as far as we can do anything without going back to 1848 we will do what we can to oblige you. First, then, before commencing operations, read an article "Pit for General Purposes," at page 356. Second, for a narrow pit we prefer ventilating by the sashes; but for one 8 feet wide, it might be as well to have ventilators back and front. Third, for all forcing purposes, and especially in lean-to houses, more ventilation will be needed at back than front. For bedding plants, &c., it may be given freely at all places in suitable weather. Fourth, we imagine you mean to have a narrow lean-to house instead of a pit; if so, you cannot do better than act on the directions given in the article referred to, page 356. Fifth, such a house would answer very well, but either a short pitched roof at back, or even a spanned roof with a walk in the middle would be better; but just in proportion to the surface of glass thus exposed would be the difficulty of keeping the place heated in cold weather. If the back wall is there all ready, we would use it and make a lean-to. Sixth, in a lean-to a small brick Arnot's stove placed, if inside, within 18 inches of the back wall, would be cheap and answer admirably. See Mr. Fish's account of them in last volume, about No. 635. A small iron stove well managed would also suit such a little place. The fire for the brick stove might do outside if desirable, but it is more economical to have it inside. Seventh, if you made a span-roof a small flue would be better than a stove, but you would require brick a yard from the furnace, and the earthen pipes ought to be 6 inches or 7 inches at least instead of 4 inches. Eighth, the moveable wooden partition would enable you to have one end hotter than the other, whether you used stove or flue. It matters little where your flue is placed; but we would prefer it entering the end, along the front, and across the other end. You may make a shelf at front as cool as you like by air-giving. We fear we do not answer you so satisfactorily as we wish to do; but if there is still any doubt just try again, as we are anxious to oblige, and always glad to hear of the plan determined on. (*H. W. E.*)—If you look to our last year's volume, page 107, No. 634, and well examine an article in our present volume, pages 356 and 357, you will find everything to suit you. Fig. 3, page 107 last volume, would suit you best, heated entirely by dung on the outside; but if you liked it better you could have open flues across at B instead of the stone clinkers. In building, leave bricks out an inch or so, back and front, about the level of the line C, and that will do for a wooden platform moveable at pleasure. For mere protecting in winter, and heat in spring and summer, you will get nothing better combining the three essentials—economy, simplicity, and utility. The aim in winter should be to protect the glass, but to throw little or no heat into the walls.

DATURA ABBOTIA (*M. F.*).—The meaning of well ripening the wood, is to give no more water all through September than will just keep the leaves from drooping. That stops the growth of such plants early in the autumn, and the force, or want of force in the roots, goes to ripen the wood more thoroughly; but as all the young shoots of all old *Daturas* are put in as close as the young wood of White and Red Currants, or as *Pelargoniums* during the winter, there is no fear about the very bottom of the shoots will be as ripe as harvest time enough. It is the young wood which will rise next year from the cut parts that will bloom, then see the young shoots are never stopped.

MUSHROOM-BED IN GREENHOUSE (*A New Subscriber*).—In all probability it would harbour insects, particularly woodlice. Our first volume is out of print but complete sets of *THE COTTAGE GARDENER* may still be had.

VERONICA ANDERSONI (M. F.).—The name of your Veronica is not Hendersoni, but Andersoni variegata, a good thing, and the treatment for an evergreen Fuchsia, if there was such, will suit it perfectly the year round. Very good loamy soil, as for best Pelargoniums, abundance of pot room, and to be freely watered all the summer, and to be merely kept moist through the winter, suits all these New Zealand Veronicas to a nicety; and they would all grow faster and more bushy if they were planted out of the pots in summer, to be taken up at the end of September, and potted for the winter. They also come from cuttings as fast and as easily as Verbenas; and, with you at Limerick, a three-year-old plant of any of them should stand an ordinary winter against a west wall with 2 inches of turf or coal ashes over the roots, and in severe frost two folds of matting nailed over the head.

CLIANthus MAGNIFICUS (M. F.).—It seems only a stronger variety of Clanthus puniceus, or Glory Pea of New Zealand, and the very same treatment as the Veronicas will suit it exactly. We shall be able to strike both of your cuttings. They came to London in your letter as fr sh as they were when you cut them off the plants at Limerick, and your packing-material is even more than the best and thinnest oil paper. Pray tell us the name by which it is sold, as it is invaluable for enclosing flowers, cuttings, and even rose-buds ready to work, in common letters by post, from one part of the three kingdoms to any place the farthest remote in any one of them. It is some textile fabric prepared with oil to imitate oilskin, and under four folds of it we could read your letter quite easily. Specimens of it should be sent to our great Exhibition next year.

ORANGE TREES, &c. (Flora).—It is very likely that both Oranges and Camellias have suffered more from cold and unhealthy soil than from want of pot room. It would in such circumstances be well to examine both now, and give fresh healthy soil, but do not give large shifts. Very possibly you may find that the roots may require less room until they are healthy and established. The heat of the conservatory will do very well, as the sun is powerful just now; but a little shading will be required on sunny days. We know no hint of the size of your plants or the boxes in which they are grown. Their treatment may ere long receive longer details.

HEATING A PIT (A Reader).—We cannot recommend any particular apparatus. Consult the advertisers whose names you will always find in our pages, and they will give the information required.

CONSERVATORY (B. H.).—The proposed site will suit admirably for what you propose, but very likely it may need a little shading on the afternoon of bright days.

CLIMBERS FOR COLD GREENHOUSE (A Subscriber, Cheltenham).—Mandevilla suaveolens, Passiflora coriacea racemosa, Ballotia, Colvilli, and Rhynchospermum jasmoides. In a very recent Number (No. 15, page 274) we published a long and descriptive list of hardy herbaceous plants.

POTATOKS (G. B.).—Uncover the tubers and give one a rub in the hand. If the skin is firm on, then they are ready to take up; but if it peels off easily and yields to the rub they are unripe. Holly should be planted about a foot or 15 inches apart, but that will depend on their bushiness. They would not hurt from being two days out of the ground.

HORTICULTURAL SOCIETY'S GARDEN (L. L. O.).—The garden at Kensington is only open for the admission of Fellows, or to the friends of Fellows, by a personal introduction. The public are admitted on promenade days, which take place on Wednesdays and Saturdays upon payment of half-a-crown. It would be well if the Society had a standing advertisement to this effect in the gardening papers at this season, so that persons like yourself coming to town could be informed on these matters.

ORCHARD-HOUSE TREES (Subscriber).—The reason why the Pears potted last spring and which bloomed profusely did not bear any fruit in the orchard-house, while those planted at the same time in the open ground did bear is this; the protection of the orchard-house induced the flowers to expand before the root action had sufficiently advanced, and when the flowers dropped there was not vigour enough and root action sufficient to develop the fruit, which languished and fell. In the open ground the root action and the blooming proceeded more gradually and more harmoniously, and by the time the bloom had fallen there was sufficient vigour in the tree to sustain the young fruit. For the destruction of the red spider syringe with Gishurst Compound, as you cannot very well shut up and steam an orchard-house.

VINES (Chas. Hairs).—See what we have said to "JACK KETCH."

BOOKS (R. B. Postans).—We do not know where "Elphinstone on the Vine" is published. We have never seen the book. If people do not advertise or send us their books they cannot expect them to have any publicity.

NAMES OF PLANTS (A. B.).—Your Sedum is a Saxifrage near marginata, but without the spike of white flowers the species is not within our ken. Your tall and very pretty spiky flowers are those of a very old and very scarce plant, Veronica glabra. The other plant is not determinable from leaves. The oiled silver paper was nearly as good as oilskin, but strong oilskin is a very bad scratcher of flowers. (*Rusticus A. B.*)—Your plant is Solanum quercifolium, or one very near that species, and not a native of New Zealand; but, being free and showy, is grown there and elsewhere till it runs wild. No plant is easier managed. Treat it exactly like a Scarlet Geranium, and keep it from autumn-struck cuttings. (*A Very Early Subscriber*).—The name of your plant is not known where you found it at the Crystal Palace. It is from Loddiges' old stores, and, without seeing its flowers, no one can tell what it is except being a greenhouse climber.

FLOWER SHOWS FOR 1861.

- AUGUST 14th. PORTSEA ISLAND. Sec., H. Hollingsworth, Southsea.
AUGUST 20th. SHEPTON MALLET. Hon. Sec., Mr. J. Brabner, Shepton Mallet.
AUGUST 28th. DENSBERY. Sec., Edward Fortt.
SEPTEMBER 2nd. HECKMONDWICK. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmondwike.
SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.
SEPTEMBER 5th. WORKSOP. (Floral and Horticultural.) Hon. Sec., Mr. Geo. Baxter.
SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) Garden Superintendent, G. Eyles.
SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) Garden Superintendent, G. Eyles.

NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

REMINISCENCES OF A GAMEKEEPER.

(Continued from page 369.)

WE waited thus till the mist cleared off, and then set about beating for our birds.

Let me describe the country. My master's property lay in the valley, along the middle of which a small stream wandered, and when I have stood on ground high enough (a railway bank, for instance) to watch its course, I have wondered how anything so crooked could have been accomplished. The ground gradually rose from this stream to the common. The higher we got the worse the land, till we approached the waste, when it became positively bad, and, if let alone for a time, vindicated its originality by throwing up a vigorous crop of heath. However unthankful such land may be for farming, it makes a good game country, especially when farmed by the old school; suffered to remain in eight-acre fields, and surrounded with good double hedge-rows. It was so at the time I speak of, and this, added to the mist, made it difficult to ascertain where the birds were gone. We, however, found them at last, and they went to the heath.

In such a country as I have described birds disturbed for the second time take to the waste, and after a day or two it is astonishing how they learn to take advantage of everything that is in their favour. I am not going to describe the years I stayed in this place, but mention these habits of the birds because they partly caused me to leave it. After the first fortnight of Partridge shooting, especially if the old cocks remain with the covies, they skim far out, just clearing the tops of fuzes, heath, and stunted firs. It is essential, before the birds are driven out, that the marker shall be on the heath to watch their settling, and he should be practised at it, or, in all probability, he will not be within a quarter of a mile. These commons are full of old roads and rides; they settle here, and run till they come to an open spot, when they take wing. The only hope of sport after the first fortnight or three weeks is in driving them into the heath or high fuzes.

Although a common thing with me, I have often watched the dogs with delight. Emerging from the fields, and following the direction of my hand, anxious enough to put on their best pace, they course along the common, but suddenly they stop as if paralysed. They have arrived at the road where the birds settled only a few minutes before. They stand like statues. The birds are running before them. Hold up, Die; steady, old dog. He knows it, and dropping his erect position, he draws himself along, his nostrils expanded, his eyes almost protruding from their sockets. Now and then he stops, and, lifting his head, looks before him. His instinct tells him the prey is in front. He stops; he stands with his head pointing to a patch of furze; he is immovable. Surely a bird has stopped there; beat it. Whirr, whirr, go two young birds. Both fall. The dogs move gently again; still more gently. The birds must be close to them. There is an open space a hundred yards ahead, they must cross that, or run into cover. They have reached the end of the road, and they do not retreat.

Then begins another trial of the dogs. Fuzes are three feet high, and where there are open spots the ground is covered with shoots so sharp that it is as though it were carpeted with needle points. None but dogs brought up in such a country will face them. I have seen high-couraged dogs from enclosed countries come upon one of these clearings where the furze had been cut or burned, and was shooting afresh, and fairly howl with pain while they stood lifting up one foot after the other in a vain endeavour to find ease. Such confine themselves to the green rides and tracks there are, and if called or whistled into the furze will take a long jump in and a long jump out again; but they will not beat it. The practised dogs care not for it, but stand the birds one by one, and the guns get a fair shot at each as it rises.

In such a country it is not only the unpractised dogs, but

the unaccustomed men feel what it is to walk through furze bushes, and the light trousers that are recommended for warm September shooting form a poor protection. Many a one when dressing for dinner after a day among them is frightened at the sight of his knees and legs; and while beating, spite of the excitement, has wished that, like "Mars, the God of War," in the good father's vision (*vide* Charles O'Malley), he had

"Took to corderys."

ROSSENDALE POULTRY EXHIBITION.

THIS Exhibition was held in a field at Waterfoot. The weather was very fine during the day: the arrangements all that could be desired. The number of visitors was very great, more than £100 being taken at the gates during the day. The excellence of the poultry, and the interest taken in them, was very striking, the space in front of them being crowded by visitors during the time the birds were in them.

The Judge of poultry was Mr. Richard Teebay, Fulwood, near Preston.

HAMBURGERS (Silver-pencilled).—First, J. Dixon, North Park, Bradford. Second, E. Beldon, Lark Cottage, Bradford. **Chickens.**—First, J. Munn, Heath Hill, Stacksteads. Second, J. Dixon, Commered, E. Beldon; J. Munn.

HAMBURGERS (Golden-pencilled).—First, J. Munn, Heath Hill, Stacksteads. Second, J. Dixon, North Park, Bradford. Highly Commended, W. Kershaw, Heywood; J. Robinson, Vale House, Garstang; S. Smith, Northwram. Commended, E. Beldon, Park Cottage, Bradford. (A very good class.) **Chickens.**—First and Second, J. Munn. Highly Commended, J. Dixon; Carter & Valiant, Poulton-le-Fylde; T. & C. Parkinson, Acerrington; J. Munn. (An excellent class.)

HAMBURGERS (Silver-spangled).—First, J. Dixon, North Park, Bradford. Second, J. Fielding, Newchurch. Highly Commended, E. Collinge, Middleton; J. Dawson, String Vale, Middleton. **Chickens.**—First and Second, J. Fielding (Pollets splendid). Highly Commended, E. Beldon, Park Cottage, Bradford; W. H. Sutcliffe, Wandsworth; J. Dixon; J. Robinson, Vale House, Garstang. (A very good class.)

HAMBURGERS (Golden-spangled).—First, J. Dixon, North Park, Bradford. Second, N. Marlor, Denton. Commended, W. Kershaw, Heywood. **Chickens.**—First, N. Marlor. Second, J. Dixon.

HAMBURGERS (any variety).—Prize, J. Fielding, Newchurch (Golden-pencilled pullets very beautiful). Highly Commended, H. Cunliffe, Oakenrod Wood, Haslingden; W. Kershaw, Heywood; J. Fielding.

GAME (any colour).—First and Second, W. & N. Grimshaw, Pendle Forest, Burnley. **Chickens.**—First, B. Parkinson, Poulton-le-Fylde. Second, J. S. Butler, Poulton-le-Fylde. Highly Commended, W. & N. Grimshaw. Commended, J. Wilkinson, Earby, Skipton. **Hens or Pullets.**—Prize, W. & N. Grimshaw, Burnley. Highly Commended, W. & N. Grimshaw, Burnley; R. Gorton, Tottington Hall; Munn & Schofield, Rossendale.

COCHIN-CHINA (any age or colour).—Prize, E. Smith, Middleton (Buff Chickens). Highly Commended, J. Harrison, Blackpool; J. Robinson, Vale House, Garstang. Commended, J. Munn, Heath Hill, Stacksteads.

BANTAMS (any variety).—Prize, J. Dixon, North Park, Bradford (Black). Highly Commended, S. Birch, Blackpool.

ANY OTHER VARIETY.—Prize, J. Dixon, Bradford (Polands, Black with White Crests). Highly Commended, J. Robinson, Garstang (Grey Dorkings).

GAME COCKS.—First, A. Hampson, Bohon-le-Moors. Second, D. Ashworth, Halifax. Highly Commended, S. Birch, Blackpool; R. Norris, Newchurch. Commended, W. & N. Grimshaw, Burnley. (A very good class.)

GAME COCKFELS.—First, W. & N. Grimshaw, Burnley. Second, J. Heys, Newchurch.

HAMBURGH COCK SWEEPSTAKES.—Prize, J. Munn, Heath Hill, Stacksteads (Golden-pencilled Cockerel).

DUCKS.—Prize, M. Seamons, Aylesbury (Aylesbury, very large). Highly Commended, J. Dixon, Bradford (Brown Call, beautiful).

TURKEYS.—Prize, J. Dixon, Bradford.

GESE (Toulose).—First, M. Seamons, Aylesbury. Second, J. Dixon, Bradford. Highly Commended, B. Baxter, Ellslack Hall, Skipton.

SHEFFIELD POULTRY EXHIBITION.

THERE cannot be a doubt that the quality of the poultry throughout this, the fifth meeting of the Sheffield Society, was far superior to any of the preceding exhibitions; it is in fact a somewhat rare occurrence to meet, at even our most established poultry shows, with so general and keen a competition. A great improvement on the regulations of last year was rigidly enforced on the present occasion—viz., the exclusion of all strangers, "under any pretence whatever," until the time arrived that the arbitrations were completed.

As customary, *Spanish* headed the prize schedule, which was in truth a liberal one. The rivalry in this variety was extreme, and the specimens of this valued breed were many of them almost faultless. Mr. Lane's pen, which took the £5 prize, contained a cock and two hens, the faces of which were proofs how much care and management had been devoted to them;

they were as delicate and unsullied in appearance as the finest white kid glove. Mr. Brown's pen was a very close-running second prize. But few greater proofs of the general excellence of the class could be adduced than that the pens of Mr. Teebay, of Preston, hitherto pre-eminent, were compelled at Sheffield to submit to a third and fourth position. It did occur to us, however, that these fowls were scarcely in the first-rate condition Mr. Teebay's birds generally exhibit, although so continuously in competition. The Spanish classes for both *Hens* and *Chickens* were equally praiseworthy; but the *Single Cock* class for this breed, strange to say, was far below our anticipations. The *Grey Dorking* class proved one of the very best we ever witnessed, every prize being richly deserved; the Marchioness of Winchester, Lady Louisa Thynne, Captain Hornby, and Mr. Wakefield taking position in the order named. We regretted to find the excellent pen belonging to Mr. Berwick, of Helmsley, Yorkshire, was thrown out entirely by the sudden death of the cock bird a few hours before the time the Judges made their awards. In *Dorking Chickens*, the Rev. J. F. Newton, stood quite ahead of every rival, Mr. Lewry and Mr. Dolby trying hard for the second premium. The classes for *Cochins* were all good; indeed the *Chicken* classes carried conviction that careful management and breeding had produced an amount of general excellence throughout the whole of them, that a few years gone by would have been deemed quite unattainable. Perhaps one of the best features of the Sheffield Show were the four classes of *Hamburgs*. Almost every pen would have stood well in the generality of poultry meetings, and obtained a position on the prize list. Nearly every lot was sent in first-rate condition; two pens, however, in these classes, numbered 251 and 262, each contained a bird in a sadly sickly condition. The *Poland* classes were also better than customary, saving and except the *Single Cock* class. The second prize was necessarily here withheld. The class for "any variety" was well filled. The *Silky Fowls* took precedence; the *Black Hamburgs*, *White Polands* and *Sultan Fowls* were also worthy of especial mention. That local favourite of the Sheffield district, the "Redcap" mustered strongly, and seemed to attract much attention. The *Bantam* classes were very superior to last season, the *Game Bantams* particularly so; though, strange to say, in the *Single Cock* sweepstakes class only one entry was made.

Of *Turkeys* and *Geese* there was a first-rate display—indeed, it is but rarely any Committee obtain so good an entry of first-class birds.

Of *Ducks*, the *Aylesburies* and *Rouens* left little hopes for future improvement; and, undoubtedly, one of the best classes of *Beunos Ayren* Ducks ever yet seen was that at Sheffield. It is worthy of attention, too, that the amount of entries in this particular class fairly outnumbered those of both the *Aylesburies* and *Rouens* combined, and was only a single entry behind all three other varieties of Ducks put together. The competition was necessarily very good—perhaps a better class has never yet been got together, and the successful ones have, consequently, good reason to be proud of their laurels. Mr. Sainsbury's best pen was thrown out of competition by the death of the drake shortly after its arrival at the show-yard.

The *Game* classes were well filled with birds of undoubted excellence; but the season of the year prevented the high condition of plumage for which these general public favourites are so remarkable; nor can material improvement be now expected until after moulting-time has concluded.

There was a decided improvement in the arrangements for protecting the poultry from the vicissitudes of the weather on the part of the Managing Committee; for they were safe from sudden storms—an attention that exhibitors must always appreciate, and we can add the general comforts of the public had been as equally provided for.

The attendance of visitors throughout the time the Show remained open, we are informed, was good.

BANTAMS WITH WRY TAILS.

I HAVE Gold-laced Bantams, twelve weeks old, with wry tails. Can you tell me the reason, and if any cure? The old fowls that were bred from are perfectly straight.—ROBERT BAINES.

[As you say the parent birds are quite straight, we can imagine no reason why the chickens should be otherwise. We mean that if the defect arose from malformation, there would be

no remedy; if it is accidental, it will be temporary. We have seen it caused by packing in a low small basket, or by roosting close to a wall, so that the feathers were kept in a crooked position all night. If you will fasten the tails upright for a short time, they will remain in that position.]

BEE-SWARMING IN NORTH LANCASHIRE.

I HEREWITH send you a short summary of events on the swarming of bees in North Lancashire. The two stocks that swarmed on the 9th and 11th of June gave me three each. One I returned to its parent the same night; but the other, acting upon that golden rule that "union is strength," bolted to the two seconds that I had joined together, which I hope will make a strong stock in one of Payne's improved cottage-hives. There are several that have thrown three, and in some cases the first have thrown a virgin swarm.

The month of June was a very good one, both as regards swarming and honey-gathering, but July has been very wet, and left us in a worse state than it found us; some of the casts have perished where no care is taken of them, which I am sorry to say is too often the case in this neighbourhood, as the management of bees is at a very low ebb. But should the present month prove favourable, I expect to have a good harvest, as we have taken them to the moors, three miles, upon a handbarrow—no easy work, and to be home to breakfast by 8 o'clock in the morning.

I must give you my little experience with the Woodbury comb-bar. I have three hives, and the combs are all perfectly straight upon the bars, and two more belonging to my companions are in the same way. I must say that there was a little guide-comb used, but in all cases the bars were waxed.—A NORTH LANCASHIRE BEE-KEEPER.

ARTIFICIAL SWARMS.

I NOTICE the remarks of "A MIDDLESEX BEE-KEEPER" in your last week's Number, on his failure in attempting to raise an artificial swarm. His experience is very similar to my own. When I attempted to raise a swarm in the same manner, I put a comb containing both eggs and brood into an empty box, and then placed it in the middle of a fine day in the position previously occupied by a strong hive. The bees on returning from the field entered the box, and though very irritable continued to work until they had reared the brood. They then left their habitation in a body, without having taken any measures for raising a queen. I have, however, always found the following method successful:—If a hive is sufficiently populous to send out a swarm, I drive part of the bees with their queen into an empty hive, and, returning the old hive to its usual stand, remove the driven bees with their queen to a short distance (twenty yards or more); the presence of the queen will induce the bees to remain in the empty box, and I have always found the bees in the old hive raise artificial queens to supply the loss of their old one. This season a hive treated in this manner raised from eleven to fourteen or sixteen queens; ten I had either alive or dead in my own possession. The only difficulty seems to be to insure a proper division of the bees, full two-thirds should go with the swarm. If I think a sufficient number have not gone into the new hive, I place it on the old stand and remove the old hive; a sufficient number will thus be easily secured, and if enough bees are left to attend to the brood in the stock, it will soon be again populous. Bees in a nucomb-hive have always raised one or more queens on removal of the old one. It seems to me that the bees are so much discouraged if placed in a strange box without a queen, that they have not sufficient resolution to commence royal cells. I once removed the queen from an artificial swarm only ten days after it had been formed; but the bees, after an interval of about twenty-four hours, commenced the construction of royal cells, and worked vigorously and well afterwards.—J. E. B.

MORTALITY AMONG BEES.—From the cold and wet weather in July, which prevented bees from gathering as much honey as to keep them alive, a large number of hives have been found dead throughout Strathern and Strathallen. The mortality appears to be greatest among the young swarms, which were entirely dependant on the weather for sustenance.—(*Scotsman*.)

PRODUCTION OF DRONES' EGGS.

THE very interesting account given in your Number of July 30th, by "A DEVONSHIRE BEE-KEEPER," of the production of drone eggs by a young queen raises a hope that this obscure point in the history of the bee may at length receive some elucidation. From the want of accurate data and observation, the subject has hitherto been one of theory rather than a matter of fact, and I gladly contribute my small amount of practical knowledge in assisting to remove the veil. May I be permitted to refer to the "Honey Bee," by Dr. Beran, page 44, where the case seems analogous, leaving one to regret the account had not been more definite as to the precise age of the queen, the manner in which the brood was sealed, and the subsequent history of the queen? Possibly, by being retarded a day or two later than the queen of M. Feburier, this Ligurian queen may be not only partially vitiated in her laying powers, but also affected by an "impaired instinct," rendering her unable to exercise the wonderful knowledge possessed by perfect queens, which enables them to deposit the worker or drone egg in its respective cell.

My own observations point to the same result with a remarkable development. A young queen in the observatory-hive did not commence laying till the nineteenth day of her age, not having been fertilised till the seventeenth. The eggs were deposited in the worker-cells, and duly sealed. On examining the newly-hatched bees on the twenty-first day, I saw among them an exceedingly diminutive drone. Shortly after, I found a second, the head and thorax being those of a perfectly-formed drone, the lower part of the body appeared more tapering. Its presence seemed displeasing to the workers, and they were disposed to worry it. On returning to the hive in a few hours both these little anomalies had disappeared. Next day, however, the large eyes of a drone again attracted me, and I at once opened the window and secured my specimen. The upper part of the body was that of a perfect drone, while the lower part as closely resembled a worker. A few hours afterwards, while fingering my specimen with the freedom which the unarmed drone may warrant, I was surprised to receive a sting. I afterwards forwarded it to Mr. Golding for examination, and he unfortunately lost it. The queen laid worker-eggs the rest of the season, which was then advanced, and to my regret the family perished early the next spring.—B.

SKY BEES.

ACCEPT my thanks, and present the same to your correspondents, especially Colonel Newman, of Cheltenham, for the notice and information relative to "sky bees."

The gnats must be extremely small, and, as Col. Newman says, invisible to the unassisted eye; for I looked in every direction, the more so as at times one would appear to come nearer than the others or rather louder, and am quite accustomed to the swarms of visible ones, which are sometimes an annoyance in my own garden. I believe Col. Newman's solution must be the correct one.—G. C.

BEES IN SUGAR REFINERIES.—The *Entomological Gazette* of Stettin contains the following:—"The extensive meadows on the banks of the Oder naturally induced many farmers to keep bees; but these wise insects seem to prefer obtaining their honey with as little labour as possible, and have for years past been in the habit of frequenting sugar refineries at no great distance. Under such favourable circumstances the yield of honey was very great, and the farmers came at last to keep ten or even twenty times more hives than formerly. The sugar refiners, however, after long finding the bees very troublesome, made the discovery that they were not only annoying, but rather expensive visitors, and accordingly adopted means to destroy them. This was effected by suddenly closing all the doors and shutters, and then opening one small window, to which the bees immediately flew and were killed in thousands by a jet of boiling water. The dead bees were afterwards thrown into the boilers to extract the sugar they had appropriated. It has been estimated that as many as 11,000,000 have been thus destroyed in a year, and that about 1200*l*. worth of sugar has been extracted from them. It is a remarkable fact that the bees would never touch beetroot sugar till refined, owing to the pungent smell of the plant, but cane sugar was equally acceptable to them whether refined or not."

BEGINNING BEE-KEEPING.

I HAVE lately taken to bee-keeping, but with the exception of a few practical hints which I have picked up from your valuable paper I really know nothing of bees, the habits or management. Now, I like to understand thoroughly any subject I take in hand, and should be glad of your advice as to the best means of gaining such knowledge. I bought a first swarm of bees last autumn, which I removed into my coach-house, and fed from a bottle as you recommended. This hive sent out a prime swarm (a very good one) on June the 11th, which took possession of an old straw hive, full of old comb, in a cottage garden close by. I removed them to my own garden that evening, offering to pay for the skep, bad as it was. Next day I found this cottager had put another empty hive on the same block, and a great part of my bees went back there; whether to remain or not I cannot find out. He, the cottager, says that many of his bees—in fact, all that had survived the winter, left him early in the spring and joined my hive, and that is why the swarm came back to him. My swarm does not seem to be doing much. There are a good lot of bees, but very few seem to work; and when I turned them up for inspection a few days ago, the comb, as far as I could see, was empty and unsealed. The skep itself is so bad it will hardly last the winter. Can I do anything with them? My old hive sent out a second swarm, or a flight, as it is called in this neighbourhood, on June the 19th—eight days after the first. These were hived in one of King's safety boxes, which I bought in Cambridge, and seem to have done very well; they have just filled their own compartment with comb and honey, though they have not yet begun in the spare drawers. The old hive, too, seems very strong; but they will not work in a propagating-glass which I put on the top under another straw hive. Can you tell me why? Doubtless it is through some fault of my own.—A. W. B.

[There is no royal road to the attainment of apianian knowledge, which can only be attained by practical experience and by reading. Our advice is always available in any special difficulty. The old straw hive should have been removed to the spot it was intended to occupy in your own garden as soon as the bees had fairly taken possession of it, in which case none would have gone back. The same course should always be pursued with swarms, which should be put in their proper place as soon as the bees are settled, which will generally be in from ten minutes to a quarter of an hour after hiving. The conduct of the cottager in placing an empty hive on the block was perfectly unjustifiable; it doubtless weakened your swarm by mystifying the bees that returned to it, and thus causing them to exhaust themselves in the unavailing effort to discover their own hive on that spot, whilst it could not have been of the slightest advantage to himself. It is just possible that the starving bees belonging to the cottager may have fraternised with your well-provisioned colony; but the exposure of a deserted hive full of comb would fully account for your swarm taking possession of it, without reference to the fraternising story, which is, probably, a mere fabrication. As the old skep is in so bad a state, you had better obtain "Bee-keeping for the Many" (published at our office, price 4d.), and follow the instructions given in pages 45 and 46, under the head of "Driving." Your stock-hive having thrown off two swarms is a more than sufficient reason for the bees refusing to work in any kind of super.]

ARTIFICIAL SWARMS.

I HAVE long had it in contemplation to write an article on artificial swarming, but have delayed it from time to time, until the appeal of "A MIDDLESEX BEE-KEEPER" has come "to prick the sides of my intent."

I will, therefore, begin by endeavouring to account for his failures, although the particulars given are by no means sufficiently explicit to enable me to feel at all certain that I can assign the right cause in every instance.

In the first place, he says one of his straw hives lost its queen last winter; but, nevertheless, it bred drones, and carried in small quantities of pollen. To account for this seeming anomaly, three hypotheses at once present themselves, all of which I will briefly state, and leave "A MIDDLESEX BEE-KEEPER" to select the one which he deems most in accordance with the facts of the case. First, then, he does not tell us how he verified the supposed death of the queen. It is, therefore, just possible that

she might have been alive, although with failing breeding-powers when brood-comb was introduced. We are told by scientific observers that an exhausted queen is sometimes capable of laying only drone eggs; and I have, myself, found a superannuated queen with as small quantity of brood, and many pounds of honey in a colony which had dwindled to 150 bees. Secondly, the old queen may have died, leaving eggs or young brood at a time when no drones were in existence, and the young queen raised by the bees remaining: therefore, unimpregnated, could lay only drone eggs. Thirdly, fertile workers only may have been raised after the death of the queen, and these likewise would produce drones. Whichever be the right hypothesis, the introduction of brood-comb would probably, in either case, be equally useless.*

With regard to the attempted artificial swarm, it should at once be ascertained by a careful examination of every comb, whether either the old stock or swarm is really queenless. This fact ascertained, the remedy at this season is easy. Any cottager about to destroy a hive of bees will gladly give them to any one who will drive them; and a stock, so driven, should with its queen be added as soon as possible to the queenless colony.† The cause of failure in this case would appear to be the non-success of the bees in raising a queen. "A MIDDLESEX BEE-KEEPER" appears to have given his artificial swarm every chance of the success which it certainly deserved.

Premising, therefore, that uncertain as are the results of most apianian operations, there are few which are so liable to failure (at any rate in this climate), as the rearing and successful impregnation of young queens, I will now describe what I consider the best and safest means of forming artificial swarms where the apianian has the advantage of bar-hives.

The middle of a fine day when the bees are in full work is the best time for the operation, which may be effected as soon as drones make their appearance in the spring. The strongest colony in the apiary should be selected, and the combs carefully examined in the manner described in page 167 of the present volume of THE JOURNAL OF HORTICULTURE, until the queen is discovered. The comb upon which her majesty is found must then be placed in an empty hive ‡ (if a few clean worker-combs be added, so much the better), and this new hive containing the queen should at once occupy the place of the old stock, which must be removed to a little distance. The returning bees will make up a swarm which, having their own queen and a brood-comb to commence with, will probably do quite as well as if they had issued naturally. The place which the abstracted comb occupied in the old hive should, if possible, be filled up by a spare worker-comb, or if this cannot be done, the remaining combs must be brought close together, so as to leave the vacancy on one side. The reason for this is, that if the bees supply the place of the missing comb before a young queen is hatched, they are pretty sure to fabricate only drone-comb, which would be a decided disadvantage near the centre of the hive, and had better be removed even if made as a side-comb. One of the advantages of bar-hives is, that they enable us to limit the production of drones by removing superfluous drone-combs.

If other hives are to be operated on, it had better be done eight or nine days after the first. By this time the bees in the old stock will have formed perhaps twenty, or even thirty queen-cells. Leaving two or three of these to insure the production of a young queen, as many of the others may be cut out as will supply the hives now to be deprived of their queens, with a couple of royal cells for each, and these will have the advantage of producing queens eight or nine days earlier than would otherwise be the case; thus reducing the interregnum to about a week or even less. If queen-cells are numerous, their introduction may be effected by simply exchanging a comb in each hive; if they have to be cut out, a triangular bit of comb with the apex downwards should be cut out with them, and inserted in a similarly shaped hole cut in the centre of one of the combs of the hive into which they are to be introduced. The greatest care is necessary to avoid bruising royal embryos, and the

* An instance has recently occurred in my own apiary, in which the bees of a small artificial swarm, having failed in their first attempts to raise a queen, would not avail themselves of a second opportunity when a brood-comb was given them. Being afterwards furnished with a sealed royal cell they at once firmly affixed it to their comb, and now appear likely to raise a queen.

† If both colonies are queenless, the bees and queen from a condemned hive should be added to each.

‡ This comb should be carefully examined in order to ascertain that no royal cells are attached to it. If any be found, the queen should be transferred to another comb, and the royal embryos returned to the hive.

operation should be effected as rapidly as possible in the middle of a warm day, as the slightest chill is likely to prove fatal. For the same reason the centre of one of the middle-combs is a better position for royal cells than allowing them to remain on the edges of the comb, where they are usually placed by the bees.—A DEVONSHIRE BEE-KEEPER.

EXHIBITION OF BEES AND BEE-HIVES.—On the 20th inst. will be opened in the Orangerie, at the Luxembourg, Paris, an exhibition of bees and bee-hives, for competitors of all nations.

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 331.)

3.—THE CIRL BUNTING (EMBERIZA CIRLUS).

German, Der Zaunammer. French, Le Zizi, or Bruant de Haye.

WITH this bird I am scarcely acquainted, it being the only one of the small British hard-billed birds that I have not kept in confinement; but as the present series would be incomplete without a notice of it, I need not apologise for quoting the following description.

A correspondent, writing to a contemporary says, "That the Bunting may be regarded as a very common bird in the neighbourhood of Penzance; but it is more a bird of the grove than hedgerows, except where there are trees. In this particular it differs from its closely allied relative, the common Yellow Bunting, which is a complete hedgebush bird in its general habits. We are indebted to our celebrated countryman, Colonel Montague, for adding this bird to our list of British birds, and pointing out its specific difference from the Yellowhammer. He discovered it in the south of Devon, and it has since been observed in the southern counties pretty generally distributed. From its general resemblance to the Yellow Bunting, it was probably overlooked until his zealous attention, as to points of natural history, enabled him to detect its specific value. The female is scarcely to be distinguished from the female of the Yellow Bunting, except that there is less of a yellow tinge in the plumage. The character of the nest, as to shape, locality, and materials, is the same; but the eggs may always be distinguished by their rather smaller size, and by being marbled over with deep brown markings, appearing almost black, instead of reddish-crimson, which may be observed in the common species. I can always detect the bird, when not visible amongst trees, by its song. Every one knows, in the Yellowhammer's song, the final note, resembling the word 'Twee,' a third in tone higher than the introductory twitter. The Ciril Bunting's song never ends in a protracted high note, but its little ditty, at a little distance, very much resembles, from its greater rapidity, the trilling passage of the Wood Wren—in fact, it might aptly be termed *Emberiza sibilatrix*.—E. H. R., *Penzance*."

The Rev. J. C. Atkinson, in his "British Birds' Eggs and Nests," gives the Ciril Bunting also the names of "French Yellowhammer," and "Black-throated Yellowhammer"—"a bird," he says, "long overlooked by our native ornithologists, and perhaps more frequently occurring than is even suspected; still it is by no means a very common bird, though identified as occurring in most of the southern counties."

The description of nest and eggs is from the Rev. O. Morris' work on "British Birds and Eggs":—"The nest is placed in furze or low bushes, and is usually made of dry stalks of grass, and sometimes a little moss, and lined with fine roots or a few hairs. The eggs are four or five in number, of a dull blueish-white, streaked and speckled with dark brown. They vary much in colour."

Mr. J. M. Bechstein, in his "Natural History of the Birds of Germany," while writing of the Ciril Bunting, says, "The top of the head and upper parts of the neck are olive green, with small black streaks. A golden yellow stripe passes from the nostril over the eye to the middle of the side of the neck. Another from under the corner of the beak; obliquely through them a black one, which, behind the yellow under eye stripe, passes down and joins the black from the chin. The back and shoulder-feathers are a fine light brown: on the back mixed with black and greenish-yellow, and on the shoulder-feathers only, edged with yellowish-green; the rump-feathers olive green, edged with faint longitudinal dark brown stripes. The lesser covert

feathers on the wings olive green; the next row blackish, with brownish-yellow borders; the largest wing-coverts and the quill-feathers grey black; the covert-feathers and the secondary quill-feather edged with brownish-red; and the primary quill-feathers having a narrow yellowish-green border. The slightly cloven tail black; the two outer feathers having a white wedge-shaped spot, all edged with a narrow border of yellowish-green. The throat black; lower down golden yellow. The breast fine olive green. On the sides near the belly light chestnut brown. The rest of the under parts golden yellow.

"The female is readily distinguishable from the male by her much lighter colour. The head and back of neck are olive green, and more striped with black. The back and shoulders are lighter rust brown, more spotted with black. The rump more streaked with black. The tail more dark grey than black. The stripes over and under the eyes of a paler yellow, a blackish line passing across the eyes, and which joins the dark borders of the cheeks. The upper part of the throat brownish, and occasionally spotted with black. On the lower part of the neck a lighter yellow spot. The breast light olive-coloured, with some small black streaks, and reddish-brown longitudinal spots. The remainder of the under parts pale yellow.

"The young are, before the first moult, on the upper part of the body light brown mixed with black, and on the under parts pale yellow, and black streaked on the breast. The older they become the more they attain the olive-green shade."

Bechstein further remarks, "They are easily tamed. The call of this Bunting may be recognised by the tone 'zi, zi, za, zirr,' and his song, that has some resemblance to that of the Yellowhammer's, though less melodious, by the syllables *zis, zis, zis, gor, gor, gor*."

"They feed in summer chiefly on cabbage caterpillars and small black earth beetles."

"They breed," he says, "but once a-year. In the latter part of July they may already be found in the fields with their young, particularly in cabbage fields in the neighbourhood of willow trees."

Bechstein considers it a bird of passage in Germany. In this country they seem to stay all the year.

According to Mudie, "In winter the Ciril Buntings associate with the Yellow Buntings, which they resemble in their manners their notes, and partially also in their appearance, only they are rather smaller. Their air is softer, and their colours are more varied, and perhaps upon the whole finer. The voice, too, is not so loud or harsh, and the chirp of the female is particularly soft. It appears to be rather more an insectivorous bird than the more common species."

The different sexes and the young of this species seem to have been described by some naturalists as distinct kinds, owing, probably, to the little that was known of them.—B. P. BRENT.

(To be continued.)

SPARROWS.

I FOUND a vast deal has been said relative to Sparrows in your Journal. All labour under very mistaken ideas with regard to the usefulness of these birds, or flying mice, as my friend Mr. Newman properly terms them.

They do not consume caterpillars or insects. I have witnessed that in numbers of instances, in my own premises: on the contrary, they pick and eat every bird from fruit trees, and young green food, peas, seeds, &c., as they come up. I have numbers of Sparrows around my garden when a plum tree is covered with lice and caterpillars, likewise the cabbages and peas; they have ample opportunity of consuming them, but are entirely neglected.

Mice and Sparrows I never did yet hear or know of their usefulness. I do not know of a single case where a farmer, or a market-gardener, would wish to preserve such vermin; on the contrary, always did and always will employ some means for their destruction, where they are very numerous.

I am desirous to argue upon facts and plain truths. Let the person who can convince me that I am in error, and I will most willingly submit.—X. Y.

VARIETIES.

MANUFACTURE OF CAPSICUM PEPPER.—Any consumer of this article, who has no intention of poisoning himself, had better make it for his own use. Any of the species of *Capsicum* may

be employed, but *Capsicum frutescens* is the best. It is a half-shrubby plant, and will last for several years if kept in a sufficient temperature. *Capsicum annuum*, the common kind, is an annual, and is reared from seed in spring in a hothouse, pit, or hotbed, and may be grown in pots, set at this season in the greenhouse. None of them ripen their fruit out of doors in Scotland. The green pods of any of the species, when nearly full-grown, are put into bottles of vinegar and corked up; in that way they form what is called hot or chili vinegar. When the pods are ripe they are dried in a moderately cool oven (not in the sun, as recommended in cookery books, as that takes the colour out of them). The seeds are carefully extracted (and they may be used for making hot vinegar also) as soon as the pods are dry and crisp; they are pounded in a mortar, dried again and pounded until they are reduced to the finest powder possible, and, when sifted through a fine gauze sieve, bottled up for use. The addition of salt or flour, which is the first step towards adulteration, is useless. To such an extent is adulteration carried, that of twenty-eight samples examined by Dr. Hussall, and published in the "Reports of the Analytical Sanitary Commission of the *Lancet*," twenty-four were found to be adulterated, and that most dangerously. Thirteen specimens contained red lead, seven red ochre, and one sulphuret of mercury. Red lead, itself an active poison, and mahogany sawdust—the former to add weight and the latter bulk—may be detected in most samples purchased in the shops. The expressed juice of the fresh, ripe pods, forms the liquid cayenne which is usually imported from the West Indies. Genuine cayenne pepper could not be sold at five times the price it is, and even it is doubtful if it can be got genuine from Apothecaries' Hall. When genuine, it is of an intense bright colour, as fine in consistence as the finest flour, and feels equally soft to the touch.—(*Scottish Farmer*.)

ANTIQUITY OF THE PIG.—The Pig is the existing representative of a very ancient race of mammals which lived and died upon this earth long before there were Christians to devour, or Jews to abhor, their flesh. The same species of wild boar that was hunted by our forefathers was contemporary with the mammoth, cave-bear, and the long-haired rhinoceros. Some persons imagine that geology deals only with fossil shells or fishes; but there is a vast deal of interest attached to the geological history of the predecessors and representatives of our domestic animals. We know that the wild ancestor of our domestic pig was in existence before the separation of England from the Continent of Europe; and that the hunter, had hunters then lived, might have chased the boar through forests the site of which is now occupied by the waves of the English Channel. Mammoths, tigers, and rhinoceroses perished, but the wild boar lived, and lives still on the Continent of Europe, though extinct here.—(*Old Bones; by the Rev. W. S. Simonds.*)

RHUBARB WINE.

In your JOURNAL OF HORTICULTURE—which, by the way, I wish every domestic woman would read—I find an inquiry made for rhubarb wine. The recipe I herewith send will be found an invaluable one. It has been tried by myself many times. I think a correspondent in a former Number of THE JOURNAL OF HORTICULTURE is wrong in stating that the rhubarb should not be bruised; and possibly he may be right too, if he gathers the rhubarb before September.—E. WARREN, of "The Ladies' Treasury."

Ingredients for one gallon:—6 lbs. of rhubarb stalks, 1 gallon of water, 4 lbs. of loaf sugar, 1 lemon, a quarter of an ounce of isinglass, not gelatine. In September, when the rhubarb is woody, bruise, with a wooden mallet in a tub, 6 lbs. of stalks to a perfect mash or pulp. Pour on this 1 gallon of hard water. Let it lie six days, stirring it up three times a-day. On the sixth day strain the liquor through a coarse sieve, then again through another strainer of doubled muslin. Now add 4 lbs. of powdered loaf sugar and one lemon, including the peel, sliced very thin. Stir altogether till the sugar be quite dissolved. Let it remain in this state undisturbed for ten days. Then, without disturbing the dregs, strain the liquor off through doubled muslin, and place it in a two-gallon jar uncorked for eight weeks, when fermentation will have ceased. Then dissolve the isinglass in a tablespoonful of boiling water, put it to the liquor, and cork the jar down. In six months pour it gently from the jar through a wine-funnel, or common funnel with

muslin tied over, into bottles in which a lump of sugar has been previously placed in each. In a twelvemonth this wine will be quite equal to any foreign light kind. If when bottled the bottles are laid down side by side, the wine when opened will be sparkling like champagne: if placed upright the wine will be "still."

A CORRESPONDENT in last week's Number wishes for a good receipt for rhubarb wine. As I make it every year, and it always proves most excellent, and is most easily made, perhaps you will kindly insert this receipt in your next Number.

Take 5 lbs. of rhubarb, cut as for tarts, then add to such quantity 1 gallon of cold water; place it in a tub or vessel, where it may remain eight or nine days, taking care to stir it well up at least two or three times a-day; then strain it off, and to every gallon of liquor add 4 lbs. of loaf sugar, then juice of a lemon, with part of the rind of the same; put it into the cask with a little isinglass dissolved. The cask must not be stopped down for a month, and you may bottle it in ten or twelve months.—R. S. II.

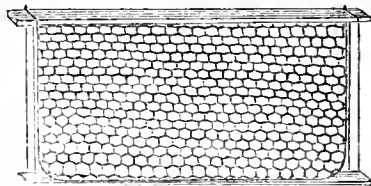
OUR LETTER BOX.

INCUBATORS FOR HATCHING CHICKENS (*Subscriber*).—Cantelo and Minasi are those whose names are identified with artificial hatching in this country. Anything will make a hatching-machine. The commonest kitchen oven partly filled with dry sand, and kept at a proper temperature, will unfailingly hatch eggs. It can be done with greater certainty where gas can be made use of. Hatching is too often to the amateur what marriage is said to be to a man—then his troubles begin. He cannot make a mother. An incubator is useful in hot weather as a means of providing every hen with a large brood of chickens, but the artificial mother is worse than nothing. Incubators may be useful in hatching Game.

FOOD FOR RING DOVES (*A Subscriber, Cheltenham*).—Rape seed, wheat, and occasionally a little hempseed.

PROPOSED SUBSTITUTE FOR FRAMES (*J. T., Tunbridge Wells*).—"A vertical piece attached to the centre of the bar, reaching near the bottom of the hive, and carrying a short horizontal piece," might afford support to the comb, but would not answer the same purpose as frames; the primary advantage of which is, that they prevent the combs being attached to any part of the box, and thereby render their removal and replacement perfectly easy at all times. The additional support which they give to the combs is quite a secondary consideration. Any division of the combs in the centre would interfere very injuriously with the breeding part of the hive, and probably thwart the breeding powers of the queen, by inducing her to lay eggs only on one side of the proposed upright.

MODE OF SUPPORTING FALLEN COMBS.—The printer having inverted the woodcut illustrating the article on this subject which appeared last week, I should be glad to have it re-inserted in its natural position thus:—



I find that the engraver has also omitted to continue the binding-wire round the supporting slip of wood. This is, however, an omission which any one can readily supply, and the woodcut when properly placed is intelligible enough. I may add that since the former article was written, I have again had recourse in this mode of supporting fallen combs, and have again found it answers most perfectly.—A DEVONSHIRE BEE-KEEPER.

FISHING IN THE DARENT (*F. G.*).—Parties living at the "Lion," Farningham, can fish in the Darent, and there is plenty of fish, but they want catching.

STINGS OF BEES AND WASPS.—Sweet oil instantly applied is the best remedy for stings of bees or wasps. Glycerine is equally good.—E. W.

LONDON MARKETS.—AUGUST 12.

POULTRY.

The market is very quiet, and there is scarcely sufficient trade to justify quotations. We may look next week for the advent of Grouse to infuse a little life.

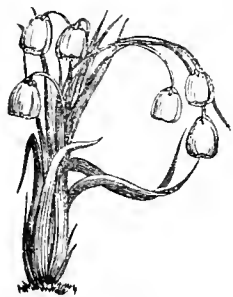
	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	3	6 to 4	Guinea Fowls.....	0	0 to 0
Smaller Fowls.....	2	6,, 3	Leverets.....	0	0,, 0
Chickens.....	1	9,, 2	Pigeons.....	0	8,, 0
Ducks.....	2	6,, 2	Rabbits.....	1	3,, 1
Geese.....	5	0,, 5	Wild.....	0	8,, 0

WEEKLY CALENDAR.

Day of M th	Day of Week.	AUGUST 20-26, 1861.	WEATHER NEAR LONDON IN 1860.						Sun		Moon	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Rises and Sets					
				deg. deg.			m. h.	m. h.	m. h.					
20	Tu	Tagetes.	29.789-29.778	68-50	W.	—	55 af 4	11 af 7	11 af 7	risers	○	m. s.	3	232
21	W	Sun's declin. 12° 53' N.	29.901-29.815	69-50	W.	36	57 4	9 7	6 4	7 15	2 54	2	54	233
22	Th	Mirabilis.	29.619-29.430	65-42	S. W.	01	55 4	7 7	21 7	16 2	2 89	2	29	234
23	F	Rosa moschata, &c.	29.839-29.681	65-44	W.	45	v	5 7	36 7	17 2	2 24	2	24	235
24	S	St. Bartholomew.	29.774-29.578	59-52	S. W.	24	1 5	3 7	53 7	18 2	8 236	2	8	236
25	SUN	13 SUNDAY AFTER TRINITY.	29.687-29.605	63-48	S. W.	48	3 5	1 12	8 19	1 52	237	1	52	237
26	M	PRINCE CONSORT BORN, 1819.	29.759-29.746	69-49	W.	20	5 5	vt	36 8	20 1	35 238	1	35	238

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 72° and 50.4° respectively. The greatest heat, 89°, occurred on the 13th in 1859; and the lowest cold, 32°, on the 21st in 1850. During the period 137 days were fine, and on 101 rain fell.

FURNISHING VASES WHEN THE FLOWERS ARE FEW.



PERSONS who possess small gardens (and who having probably nursed every plant affectionately, cannot bear to think of depriving it of its beauty, even to remove that gayness to the drawing-room vases), may be glad to hear how to gather flowers with the smallest waste, and how to arrange them to make the greatest show.

The rules for this are very simple, though a design for it is impossible, as so much depends on the arranger's taste and lightness of touch in placing the flowers; so that even if I could accurately describe the effect of a well-arranged vase, it would become stiff from the mere restraint of copying.

My best advice in a case like this would be to take, in the first place, abundance of green, if the nosegay is to be of a solid style. In that case it does not much matter what the green may be—Myrtle, Geranium, Privet, Box or Laurustinus, Carrot leaves, and even in winter the curly Kale leaves. Asparagus, too, in summer, is excessively pretty, and looks like a plant of Heath; and from the woods and hedgerows, if one is in the country, innumerable green things can easily be brought in, of which amongst the prettiest are green moss tresses.

Having an abundant foundation of green—the green itself being arranged as carefully for the effects of light and dark as though it were the bouquet; making it, however, not in broken lights, but well massed together—the next thing to be done is to see what flowers the garden can afford us. As a general rule, all flowers of thin texture, and most especially so those which combine with it a rather pale and delicate colour, or which close up quickly, are not only sources of annoyance to the garden-bed, but of no avail whatever to the drawing-room vase. They are tempting to gather; because they look at first so pretty in one's hand, seen alone and closely, and because one fancies they will not be very badly missed considering they are small. But very much mistaken are both of these ideas. They are missed a good deal if gathered in any quantity, since generally they grow low, and are filling up some corner, and certainly they do not improve the bouquet; for, being thin and wanting in vividness of colour, if they do not shut up at once or tumble off the stalk, they often are more apt to do harm than good.

The larger flowers, of course, must be gathered with grave consideration, and they must be gathered by some one who has the vase in view and guesses generally at how she wants to fill it. Let us suppose, for instance, a garden to contain, as many gardens do, scarlet, pink, and white bedding-out Geraniums, Verbenas, Carnations, China Asters, Roses, and Calceolarias. Petunias

we will not speak of, as they seldom answer well for gathering. Nemophila, Convolvulus, &c., are too fragile to be worth picking; and out of the others also there is an abundant choice.

The chief thing to avoid is gathering scarlet and pink Geraniums, or scarlet and pink Verbenas. Pink and dark rose colour do well in both together, but the pink and scarlet in the same flowers are so much alike that they want to be more or less so, and in looking at the nosegay one unconsciously compares them.

A good-sized vase well filled with green for the solid part and edges, would look very well with several white or very light flowers put in in different places dotting about the vase, then working to one side of the white, but by no means at regular distances (at least, for a first attempt, as in very mixed arrangements any degree of form is difficult to do well). Perhaps, at the back or side of one of the lighter flowers a piece of dark Verbena, a Clove Carnation, a red Rose, or even two or three such flowers carelessly grouped together, and generally the better for being of the same kind. (I should mention that I only name the light flowers to give myself a starting-point from which I can describe.) Say that above a cluster of crimson Roses one had two or three pieces of white and pale pink Verbena slightly verging towards the light flower next door. Underneath, on the shady side, if anywhere, the purple or mauve Verbena, lighted up in its turn, when the time comes for lighting, which is only at the very last, with a little piece of velvety scarlet Geranium, and it is the more essential to choose a deep full scarlet because of the purple being so dead that a paler, thinner colour would look poor by its side.

These purple Verbenas must be only looked on as shades; a flower-glass will look no fuller for them, though sometimes they will answer in filling up a shadow. These dark flowers, however, should always be arranged not to overshadow, but to be enlivened by, the lighter flowers near.

The centre of the vase will probably have a cluster of Roses, or a fine Geranium, which shows extremely well if surrounded with four of its own good-sized leaves. If Roses are used there, one or two little pieces of Scarlet Geranium often prove effective for lighting up the centre. A Water Lily is particularly beautiful when it can be had. So are Passion-Flowers well relieved with scarlet or with crimson. But the very centre should be always some grandish flower or a distinct light sort of group-light, not in colour so much as in arrangement. Spikes of Mignonette do better in the middle than in any other place. A good group of Carnations answers beautifully, and sometimes one may make a merit of a difference, just as at another time one tries to be all alike. So five or six splendid Carnations of various stripes and colours may look very striking.

When the general effect of the nearly finished vase is that the edge is darker than the centre, a few little sprays of yellow Calceolaria may be introduced with very great advantage, and it will, better than any flower I know, light up the vase without toning down as white does, or

reddening the colour too much as scarlet does, when not wanted for its own sake. The yellow may have put in against it a good-sized spray of the dark orange brown sort of *Calceolaria*, which has often a very good effect, and decides the yellow to be really gold colour. If the centre should be the heaviest, it may probably require the addition of a little red or pink or white to give it liveliness, as well as a little yellow to give the required light. Light and gay, in this instance, having a different meaning, as may easily be seen by substituting Scarlet Geranium for the bright yellow flower, when it will look rather darker than it did before.

The lights must not be too numerous, nor too large, nor too near the actual centre. I think for them it is best to slip in the flower (the stalk smooth and deprived of leaves), and then to cut off with sharp scissors any too many of the "Ladies Slippers."

China Asters, Stocks, and dull-coloured Verbenas should never advance much into notice. Sometimes a good China Aster may, but generally vases are better with lighter-formed flowers in the more conspicuous places, and when there is a choice, I think if there is much scarlet in the vase the yellow-tinged light flowers do better than those of a pinkish or bluish hue, which in their turn again answer best where the chief tone is crimson.—E.

THE MUTISIA FAMILY.

This family was high up in the peerage of the flower garden when I first came to London; but I should like to know how many gardeners of the present day, out of every thousand of them who have not yet graduated in the craft, who know what a *Mutisia* is, or what it is like.

There is something in the wind just now, which will bring a notice of this family as a welcome visitor to every garden and gardener in the three kingdoms; and as that something is certainly worth talking about, let us begin at the beginning, and go back just for threescore years and ten.

The Spaniards were then as high in the New World as ever they were low in the old one, and Cavanilles was then their great botanist. *Mutisia* was a Spaniard out in South America, who had a botanical turn for flowers, and gathered many new ones, which Cavanilles booked, just as we do; and for his doings *Mutisia* had the most curious family in South America, apart from Orchids, named after him by the very professor who, very likely, lectured the first notions of botany into his head.

The first of the family which I recollect came into cultivation here in England at the same time as *Eceemocarpus scabra*, *Lophospermum scandens*, *Rodochiton volubile*, and *Bignonia Cheriri*; but the latter bloomed only for the first time then, and not till then was proved to be a new half-hardy climber like *Mutisia*, *Eceemocarpus*, *Lophospermum*, and *Rodochiton*. The May following I saw 250,000 people in one field in Yorkshire crying for the first Reform Bill, and I saw the day before or after that gathering a second *Mutisia* with Mr. Cooper, at Wentworth House, the best bulb grower then in the county. This was more curious still, "thistle blades wif vine claspers at the ends o' them," as a Scotchman would say. Yes, this, then a new greenhouse climber, had soft, spiny, thistle-like leaves, with a tendril at the top end of each leaf, by which tendril all the *Mutisias* climb and find their own supports; and they are so very different from all other climbers, in being composites with such out-of-the-way leaves that they were universal favourites for a year or two thirty years back; but they were so difficult to propagate, and the people had not then given up the mad habit of over-heating every mortal thing from a foreign country, and with too much heat *Mutisias* sulked and would not bloom, and soon they were doomed. But now that gardeners have thrown the mad cap over the wall, they can bloom *Disas* in the open air; and the Messrs. Veitch exhibited a most splendid new *Mutisia* at the last meeting of the Floral Committee, which is as great a novelty in its way as the flowers of *Disa grandiflora* are from every-day flowers. They say it is perfectly hardy, and that it stood 26° of frost last winter, or, in other words, the mercury was down to 6° on the thermometer where the plant was probably down at Exeter. The flowers of this hardy *Mutisia* put you in mind of those of *Gazania rigens*, when the florets roll

back to their full stretch with the sun; but the florets of this *Mutisia* are half as wide again, and half as long again, and not quite so sharp-pointed as in *Gazania rigens*, and, moreover, they are of a yolk-of-egg-yellow, very near the tint called *velutina*.

Eceemocarpus and *Mutisia* on their first appearance in our gardens made such slender and long-jointed growth that it was very awkward to get handy cuttings from them, and the cuttings were very difficult to manage then; but propagation has made great progress since 1830, and no one now wants cuttings of *Eceemocarpus* of those days. But the *Mutisias* made no progress in a different way of growth: therefore, the way to get the best plants of them thirty years back, and the best cuttings, and the most flowers, must, of necessity, be welcome news to country gardeners, and to some others.

Like all others of the fast-running, soft-wooded, half-hardy, and hardy climbers, the *Mutisias* do best in maiden compost, like that in the flower-beds of the new grand garden at South Kensington. There is nothing on the face of the earth, or under it, in which gay flowers come out more fresh and beautiful than in maiden soil. All the manures and liquids in the world do not give that gloss and freshness to flower-garden plants, and to such climbers as this *Mutisia*, as newly-broke-up ground, or the top spit of most commons when it is about half rotten. If I had a grand conservatory for climbers inside and outside of it, I would have the inside in four divisions, and the outside in six divisions, and *Mutisia* would be in the sixth division. The reason for the four divisions of borders inside the house and the six divisions outside is this, that I would never allow my gardeners to let one of my best inside climbers be in one particle of soil that was over four years old from the time it was fresh from the common, and I would have every particle of the soil in one-fourth of my border for climbers removed every year in April, to be filled with nothing but fresh turfy soil without any manure stronger than a little rough leaf mould.

The *Mutisia latifolia* and *illicifolia*, if I recollect rightly about their names, would be in-doors, but in the coolest part of the house, and where I could order the shoots to be trained out to the open air from the end of May till the frost, as with *Tacsonias*. The outside borders, as they receive more and purer air and rain water, I would not disturb oftener than once in six years—one-sixth part of the borders to be renewed annually. Mr. Veitch's grand new hardy composite climber would be in one of these divisions, full to the south or south-west. For the first four years after planting, this and the other two *Mutisias*, if they are still to be had, I would cut them down to very near the surface of the ground in April, early or late in the month, according to the earliness or lateness of the spring; and about the middle of May I should expect to get my annual crop of cuttings from the extra number of little shoots then pushing up for the nastery. Unless this new one be very different from the old ones—and it does not seem to me to be so—I am satisfied that no gardener out of twenty will be able to increase it by cuttings after the shoots attain a length of 6 inches or 9 inches: therefore, be on the look out for the best time for striking it and for the best sorts of cuttings, because this will be sure to be a high-priced plant for some years to come; not but what the nurserymen will be able to strike it or root it all the year round, for nothing seems to come amiss to first-rate nursery-propagators now-a-days. The reason I mentioned *Eceemocarpus* and the other common climber as having been introduced into cultivation at the same time as *Mutisias*, was in order to show how easily *Mutisias* might have been flowered to this day had they but received the same kind of out-of-door treatment during the summer; and to be cut back yearly, as you well know suits all our common softwooded climbers and all our woody ones which bloom on the growth of the present season, like *Passion-Flowers* and *Clematises*.

If I were young again, and with my present experience, I would certainly beat all the fancy gardening in the country with my climbers; I would take more pains and pride in them than in anything else about the garden, except Grapes; but my Grapes and my climbers would, indeed, be Grapes and climbers worth going any distance to see. But you might like to know how I should manage with my renewed borders for that class of climbers. Do you think I would throw away the old plants, and layer or get from cuttings a fresh lot of youngsters at the end of every four years or six years? Not a bit of it. At the end of thirty years my *Mutisias* would be as fresh as this new one from the Exotic Nursery, King's Road, London. I would get every root and fibre of them up safe as a bedding plant, and

I would prune the big roots, and see whether six-inch lengths of them would not make better plants than the best cuttings, and I might try to graft the ripe parts of last summer's wood on the best pieces of these prunings of roots, and then experiment on the three ways of getting my stock of plants—the root cuttings against the old stool, and the grafted on the root plants against the other two. It is very likely I should discover some better plan than our common routine amongst such a quantity of experiments and kinds of plants; for I would have at least every hardy climber that was worth growing. I would allow the existing generation to go the way of all the earth, but I would teach the next that Nature designed climbers to be the superlatives of the whole vegetable kingdom. After that the world would assist Nature instead of warring against it, as they do in this generation in the matter of climbers. Of course I would have a geothermal border, but I would not heat the soil for climbers as the Frenchman said.

The way I would do it would be to have the border for the outside climbers mostly above the level of the rest of the garden. I would not mind if the bottom was wet or dry, hard or soft; for I would prevent the roots getting there at all. I would have the bottom a little on the slope, and I would thatch it with red roofing-tiles in two courses—that is, instead of having ridge tiles to cover the edges of the flat tiles as in roofing, I would have all flat tiles with turned-up edges. Then, after placing the first two rows of them across one end of the border, I would place a third row over the first two. The joint between the two lower tiles would thus be under the centre of the upper course, and that the whole way of the border; and the spaces between the edges of my upper course of tiles I would fill with rubble stones. That would make a honeycomb-bottom for hot air or steam, and with either a due proportion of ammoniacal gas; then 20 inches deep of the maiden soil, and a sunk trench along the whole bottom side of the border, and a foot lower than the lowest course of tiles. That trench would include the drainage from the border and the source of my geothermal requisites. The tiles, or the upper course of them, and the stones between them, I would keep at from 80° to 90° of heat from April to October, and at 60° for the winter. Moist heat, recollect, all the time, and to be charged with ammonia from May to September. I am satisfied the day is not distant when such borders will be fed with volatile ammonia from below, instead of making muck pies of them as some people do both in the preparation and in the after digging-in of manure.

But, as I was going to say about the old stools of these climbers, why, except as to the lengths of some of the two-year-old roots, you might understand it all by the usual practice with pot Pelargoniums. They are overhauled once a-year: and why? My climbers only once in four years if they be inside a house, and only once in six years if not. But mind me! I never would tie my hands to any one thing about plants and a garden. If I saw anything wrong, or not just right enough to my liking, I would be into it and at the bottom of it the first year or any year in the run. When such things are done as I say, it is a chance if one in a hundred ever requires anything extra being done for it to the end of the stated period. But why remove a climber just at the time it is at its best mood? might be a natural question. Would it not be just as natural to ask why Mr. Turner, and those who compete with him in softwooded plants, renew the soil and the roots annually; or why Mr. Rivers casts out the dead roots of last summer's growth, if not to make room for those of next spring and summer to luxuriate in renewed earth? The truth is, the building and planting of a conservatory to last for a lifetime belongs to the last generation. It will not do in these fast fancy days, and it is not right it should. Everything must be kept young-like, fresh-looking, full of free growth and sure bloom, clean as Pinks, and sweet as Violets; and if not so, better not be, or be but one-quarter of the thing to be done. Accustom an Oak, or a Geranium, or any plant between the two, to periodical removal, and the roots will soon mass and keep near home; so that moving one of such plants does not mean the old way of transplanting at all, but more like shifting from one pot to another. It is the fresh soil and the great vigour of the annual root under this treatment which makes the grand display; and it is the running out of the goodness of old borders, bare roots and feeders far away from reach of what to feed upon, which cause hide-bound sealy barks, and curls, blisters, moulds, and vermin in nine-tenths of the climbers of the fast-dying-off generation.

When a free-growing climber like these Mutisias has nothing

to feed on, or next to nothing, the next move is that it will feed on itself, if you can understand how that can be; and it is when a plant begins to feed on itself that it is most liable to insects, and the reason for that is that it is then much more palatable or exciting food for the vermin. It is a very curious thing—a plant feeding on itself. When a plant is said to be dying by inches, it is, as sure as I say it, feeding on itself, and will not die outright as long as there is ought to supply the last rising of the leaf at night. Science tells you that the leaves pump up the sap from the roots to fill all the pores of a plant and to keep themselves in food which they digest. Then, when the roots get but one-half or one-third of the necessary quantity of feeding matter in the soil, the rest is made up by the leaves consuming what ought to keep the wood in sap. Then the juices in the leaves and young top shoots are sweet as honey to some kind of insect or another, and it is sure to come. D. BEATON.

VENTILATING ORCHARD-HOUSES.

WE built three houses, 60 feet by 20 feet, with ample gable ventilation, but no ventilators in the roof, as it was thought to be unnecessary. One of these, after being used for forcing Roses, was filled with Cucumbers trained under the roof. These were a magnificent crop, but after a time the centre of the house became infested with red spider, which no effort could keep under. I also observed that another house, filled with Vines, had not such well-coloured fruit in the middle of the house as at each end. We, therefore, had ventilation made in the roof, and one of our men proposed the plan of opening them, which consists of openings composed of two large panes wide; the ventilator is opened by pulling the cord, and shuts by its own weight when the cord is slackened. There are five of these openings in the new ninety-feet-by-thirty-feet house, which, with the two windows in each gable, have proved quite sufficient in the hottest weather. As a proof more ventilation was required, the Cucumbers, &c., are now good in all parts of the house.—I. R. PEARSON, *Chilwell*.

ROYAL HORTICULTURAL SOCIETY.

FRUIT COMMITTEE.—A Meeting of the Fruit Committee was held on Tuesday, the 13th inst., Mr. Edmonds in the chair.

A very fine cluster of cones of the *Pinus pinaster* was exhibited by Thomas Broadwood, Esq., Holmehush, near Crawley.

A collection of Grapes was sent from the garden at Chiswick, they were cut from the pot Vines grown in a pit, to which we called the attention of our readers a week or two ago. The collection consisted of the following:—Early White Malvasia, which has fruited this season for the first time for many years in the garden, and afforded the opportunity for the Committee to discover that Burckhardt's Amber Cluster is identical with it. Muscat Citronelle of Mr. Rivers also proved to be synonymous with it; but this is evidently a mistake. Smith's Sweetwater has a bunch closely resembling the Royal Muscadine, and may ultimately prove to be the same; it has a very rich flavour, which was remarked upon by the Committee. Stillward's Sweetwater, and Chasselas Vibert very closely resembled each other; both, unlike the old Sweetwater, having set remarkably well. Chasselas Vibert is firmer in the flesh than the other, and more crackling; but certainly inferior to it in flavour. Foster's White Seedling is a large-bunched early White Grape, coming in as early as the Sweetwater, and producing a fine large oval berry of rich flavour: this the Committee pronounced to be an early White Grape of the very first quality. Muscat Hamburg was well shown; the bunch was of good size as well as the berries, and the latter well-developed and rich in flavour. There was a bunch of a White Grape, a plant of which had been received from Mr. Whiting, under the name of Syrian (?); it was neither Syrian nor White Nice, but bore a considerable resemblance to the imported Grapes known as the Lisbon Grape: it had the same thin skin adhering closely to the flesh, which is crackling, and with a cool and rather pleasant flavour. Morisca Preta was characterised as being "all skin and stone," it is a small Grape, and of no merit. St. Laurent Muscat and Ottonel Muscat are both small-bunched Grapes, and with small round white berries with a very marked Muscat flavour; but they are so very small, and when the fruit is quite ripe it tastes mealy. Their only recommendation is their earliness, but that is not so much gre

than that of *Chisselas Musqué* to compensate for the great difference in value.

Mr. William Thompson, of Dalkeith Palace Gardens, sent a seedling Grape, the seed of which was sown in the spring of 1860, and when the fruit was cut the plant was but seventeen months old. When started this last spring the Vine was not thicker than a straw, and yet it bore six bunches of Grapes—rather hard work for one so young. The bunch exhibited was, nevertheless, 9 inches long, it is slender, tapering, and not shouldered, very well set, and with a stout footstalk; the berries are small, round, white, with a thin bloom on the skin, and of a rich, and at the same time, piquant flavour, with a slight trace of the Muscat aroma. In the opinion of the Committee this will prove a first-rate Grape, but it requires further trial, and to be grown stronger, as from being so young it cannot be expected as yet to exhibit its full merits.

Mr. Constantine, gardener to C. Mills, Esq., of Hillingdon Court, sent a new White Grape, which was introduced from Bythia in Asia Minor, and which is said to be the finest Grape that comes to the Sultan's table. The bunch of this variety was 9½ inches long, heavily shouldered, of a tapering shape, and very well set. The berries are large and oval, and the skin is of a light amber colour, thin, and adhering closely to the flesh. The flesh is rather firm, juicy, rich, and highly flavoured. This deservedly received a First-class Certificate. When grown in the same house with the Black Hamburg it comes in about a fortnight later.

Mr. Rivers, of Sawbridgeworth, sent a seedling Peach raised from the Early York, and called the Early Victoria. The fruit is of medium size, a week earlier than its parent, which is one of the earliest of Peaches, and the flavour was most delicious. It was compared against Early York, Petit Mignonne, and Early Anne, and far surpassed them all. As an orchard-house Peach it was considered of first-rate quality; but the fruit being produced under glass the Committee declined to give any opinion upon it as an out-door variety until it has been proved by being cultivated against a wall in the open air. Mr. Rivers also sent a seedling Nectarine raised from Fairchild's, which was exactly similar to its parent, and showing how fixed the character of that variety is; a capital illustration that varieties will reproduce themselves from seed, and remain true during many years.

Mr. Meyers, of Boston Lane, Brentford, exhibited specimens of Beniposta Apple, of which there is now a large quantity in the markets imported from Spain.

Mr. John Newton, gardener to F. G. Graham, Esq., Enfield Chase, exhibited specimens of Irish Peach Apple.

FLORAL COMMITTEE.—A field day for the florists. Dahlias and Hollyhocks in abundance, with Phloxes and Verbenas, ought to have made them happy; and they were, in consequence, in very high feather, though the palm was clearly taken out of their hands by a flower that did not belong to them—*Mutisia decurrens*, but more of this presently. Yet one could see how much interest was felt in the long row of boxes, &c., which for the first time almost made the room look like a small exhibition. Unhappily everybody is out of town, and it would be considered the height of impropriety to acknowledge having been at Kensington in the month of August, after the Parliament had broken up, and the Queen gone out of town.

Mr. Turner, of Slough, sent a large number of seedling Dahlias and other things. Amongst the former were—*John Spencer*, dark crimson flower; *Blondin*, a second-rate; *Duchess of Wellington*, a cupped flower, very pretty; *Cygnat*, deep blush, a very neat and quaker-like looking flower: for this a Label of Commendation was awarded. *Bob Ridley*, dark crimson flower, well filled in the eye, but somewhat coarse. This also received a Label of Commendation. *Fairy*, yellow, too small; *Una*, edged flower, eye a little sunken, but will probably come up. This also received a Label.

Mr. Samuel Green, of High Cross, exhibited Dahlia *Variabilis*, which might be useful as a decorative plant.

Comet was shown by Mr. Hopkins. This is of a dark brick-dust colour.

Mr. Cook, of Notting Hill, showed *Mary Anne*, a deep scarlet flower of very rich colour, but not considered of sufficient shape to merit a reward.

Mr. Keynes, of Salisbury, also showed a considerable number of blooms of his own and Mr. Dodds' raising. Most noticeable was *Minnie Dodds*, which received a Label of Commendation, *Marie Coulter*, *Bellona*, *L'Etoile*, a fancy kind, white ground, striped pretty regularly with crimson bars. This received a

Label of Commendation. There were also *Mrs. Crisp*, a fancy kind; *Purple King*; *Maid of Bath*; and *Imperial Purple*. Generally speaking, Dahlia flowers were small, and will most probably be shown in better condition at the next Meeting. From the gardens of the Archbishop of Armagh was sent a variegated plant of *Scrophularia nodosa* (indigenous), which the gardener stated to be very effective for edging, and being perfectly hardy it required no care in the winter. The Committee did not consider it, however, equal to other variegated plants already in cultivation.

Mr. John Standish exhibited four pots of his seedling *Glaucolus*, the *Rev. Joshua Dix*, which had already received a First-class Certificate, and is unquestionably a fine flower, of excellent shape; *Rosenberg*, which last year was awarded a Label of Commendation, a crimson purple, of good form; *Mrs. Moore*, a light fawn-coloured flower; and *Striata formosissima*, well deserving its name, being very beautifully and regularly striped with deep carmine. For this a Label of Commendation was awarded.

Mr. White, of Woodlands, Isleworth, sent a box of *Zinnias* and some *Petunias*.

Messrs. Downie, Laird, & Laing, of Edinburgh, and Stanstead Park Nurseries, Forest Hill, sent one of the finest boxes of seedling Hollyhock blooms ever shown. Their names were *Lady Dacre*, *George Keith*, *Mrs. Downie*, *Stanstead Rival*, *Lady St. Clair*, and *Pink Queen*. Three of these were selected for award. *Stanstead Rival*, a truly grand satin rose flower, well filled up in the centre, of good substance, and great freshness. This received a First-class Certificate, as did also another, very little, if anything, behind it—*George Keith*. This was of a deep crimson colour, and very effective. *Lady St. Clair* received a Label of Commendation; it was a delicate blush-coloured flower, but large and good.

From Mr. Chater another collection was exhibited, consisting of *Joshua Clarke*, a rosy carmine flower, for which a First-class Certificate was awarded; *Augusta Bland*, blush; *Standard Bearer*; *Hon. Mrs. Gerald Wellesley*, rose; *Invincible*, considered to be too like *Stanstead*; *Imperial*, dark crimson; *Vestal*. *Agenora*, *Advancer*, *Rosea magniflora* were also in the boxes; but generally speaking, although fine they did not seem to equal the former collection.

Another collection of inferior merit was sent by Mr. Bragg, of Slough; and other by Mr. George Paul, of the old Cheshunt Nurseries.

A hybrid *Begonia* was exhibited by Captain Trevor Clarke, which looked as if it were a great improvement both in colour and habit on *cinnabarina*; but it was not considered in a fit condition to judge of its merits.

Mr. Bull, of King's Road, Chelsea, sent three *Caladiums*, of very inferior merit, and a hardy native Fern of great interest—*Athyrium filix-femina*, var. *Frizelliae*, and called popularly from its appearance the "frizzled Fern," not as a free translation of its Latin name—though, singularly enough, it was discovered by a Miss Frizel in the county of Waterford, in Ireland. It was justly awarded a First-class Certificate.

Messrs. Veitch & Son exhibited the plant already alluded to as the flower of the Meeting—*Mutisia decurrens*, a hardy climber from the Andes; the blooms (which seem numerously produced) being of a brilliant orange, the petals reflexing somewhat in the manner of a Turk's-cap Lily. For this a First-class Certificate was awarded; and if it should be easy of propagation, will no doubt be a very popular flower; but this I think is questionable. They also sent *Culcolaria species*, very fragrant, with woolly foliage, white, with light crimson spots, but not likely to be valuable; *Amaranthus species*, which Mr. V. considered might be a useful substitute for *Perilla nankinensis*, being brighter in colour. *Fuchsia Hugh Miller*, a very large blush white flower, not first-class as a florist's production, but considered useful as a decorative plant—for this a Label of Commendation was awarded; also another, *Milton's Virgin Queen*, not of equal merit; *Pelargonium Marie Thierry*; and a hardy plant with yellow flowers called *Bidens humilis*.

Messrs. E. G. Henderson & Co. sent a plant of *Convolvulus mauritanicus*, a useful basket plant, to which a Label of Commendation had been given. Mr. Hally, of Blackheath, sent *Pelargonium Sunshine*. Mr. Kinghorn, *Lobelia Mars* and *Purple Standard*, the latter not fulfilling the expectation formed of it. Mr. Charles Turner forwarded a box of Verbenas, for which a Special Certificate was awarded; and a collection of Phloxes, among which *Madame de Wendel*, *Julie Roussel*, and

Lord Byron were conspicuous. Mr. George Paul sent a box of *Gladiolus* blooms, which were very pretty, but served to show how very superior in shape and size Mr. Standish's seedlings are.

It will thus be seen that the Meeting was an interesting one. The day was brilliant, and tempted one to take a walk through the gardens, which are in great beauty; but Mr. Beaton has discoursed so largely on them that I can have but little to add. There were two grave faults to my mind in the two large shields. One in the pattern—viz., that one side had far too many beds to make it match with the other, and that the beds of *Gazania* were a failure, and I believe always will be. Half of the flowers are closed, and this gives it a dingy appearance. The oblong compartments with *Scarlet Geranium* in the centre, then a ribbon of *Purple King Verbenas* edged with *Tropaeolum* were perfect. Some beds with *Phlox Radowski*, the *Purple Orach*, and *Alyssum variegatum* intermixed were very beautiful. The gardens altogether are now well worth seeing.—D., *Deal*.

EFFECTS OF THE LAST WINTER IN LEICESTERSHIRE.

(Continued from page 340.)

THERE are some errors in my account or in the printing, as "sere-like" is repeated three times, and it should be "the like." And all the *Genistas*, *Alyssums*, and *Aubrietias* are uninjured.

Iberis sempervirens was killed.

Wistaria sinensis, 12 feet, against rock uninjured, but it has not flowered this year. *W. sinensis alba*, 9 inches, killed. *W. frutescens*, 2 feet, killed to the ground.

Garrya elliptica, 5 feet, uninjured.

Philadelphus vulgaris alba, 5 feet. *P.* (miscalled) *sanguinea*, 4 feet, uninjured.

Chamaerops excelsa, 6 inches, killed. This had a glass over, but raised about 2 inches from the ground on the south side.

Bryanthus erectus, 3 inches, uninjured.

Weigela rosea and *amabilis*, 5 feet, uninjured.

Empetrum rubrum and *nigrum*, 4 inches, uninjured.

Kalmia latifolia and *rubra*, 2 feet. *K. glauca*, *nana*, and *angustifolia rosea*, 1 foot, all uninjured.

Rhodora canadensis, 2 feet, injured.

Quercus suber, 6 feet, last year's growth killed. *Q. cerris*, 20 feet. *Q. rubra* and *pedunculata foliis variegatis*, 9 feet each, uninjured. *Q. coccifera*, 15 inches, killed nearly to the ground. *Q. agrifolia*, 9 feet, last year's growth killed. (Removed). When I write this word I mean the plants were transplanted last November.

Ilex aquifolium, *I. albo-marginata* and *aureo-marginata*, 18 feet each, uninjured. *I. aquifolium ferox*, 6 feet, uninjured. *I. huxleyana*, 6 feet, leader slightly injured.

Thuja occidentalis, 18 feet. *T. Warreana*, 4 feet, uninjured. *T. aurea*, 1 foot, injured on north side. *T. Craigiana*, *T. gigantea*, and *T. japonica*, all 18 inches (removed). *T. sinensis*, 10 feet; *T. pendula*, 3 feet, all uninjured. *T. Lobbii*, 2 feet, the greater part killed. (Removed.)

Thuja borealis, 9 inches, uninjured. (Removed.)

Libocedrus chilensis, 5 feet, killed.

Cunninghamia sinensis, 5 feet, killed halfway down.

Cupressus Knightii, *C. funebris*, *C. to. nana* and *viridis*, 5 feet, killed. *C. Greviana*, 12 feet, and *C. macrocarpa*, 18 feet, killed. *C. Uhdiana*, 9 feet, top of leader killed. *C. Lawsonii*, 2 feet, uninjured (removed). *C. ericoides*, 6 inches, uninjured.

Taxodium distichum, 8 feet, uninjured. *T. sempervirens*, 8 feet, injured.

Cryptomeria Lobbii, 2 feet, slightly browned. *C. japonica nana*, 9 inches, uninjured.

Wellingtonia gigantea, 3 feet, uninjured. (Removed.)

Abies orientalis, 1 foot; *A. clauseniana*, 10 years' growth; *A. Douglasii*, 2 feet; *A. Khutrow*, 6 feet (removed); *A. nana*, 8 inches; *A. pyramidalis*, 9 inches; *A. canadensis*, 6 feet; *A. cilicica*, 9 inches (removed), all uninjured. *A. Brunonian*, 2 feet, killed. *A. pinsapo*, 6 feet (removed), injured.

Juniperus sinensis, 15 feet; *J. suecica* and *hibernica*, 3 feet; *J. hibernica compressa*, 9 inches; *J. recurva*, 10 feet; *J. Virginiana*, 20 feet; *J. squamata*, *J. sabina prostrata* and *J. tamariscifolia*, 12 years' growth, all uninjured. *J. excelsa*, 6 feet, killed down to 2 feet from the ground. *J. tetragona*, 12 years' growth, and *J. thurifera*, var. *elegans*, 9 feet, killed.

Picea bal-amca and *pectinata*, 20 feet; *P. amabilis*, 5 feet;

P. nobilis, 6 inches (each removed); *P. Nordmanniana* and *Webbiana*, 2 feet (each removed), all uninjured.

Pinus cembra, 6 feet; *P. nana*, 6 inches; *P. strobus*, 12 feet; *P. pinaster*, 30 feet; *P. excelsa* (removed), and *austriaca* (removed), 9 feet; *P. pyrenaica*, 3 feet (removed); *P. Benthamiana*, *Jeffreyi*, *pumilio*, and *macrocarpa*, 2 feet; *P. mugho*, 9 inches, all removed and all uninjured. *P. insignis*, 20 feet, and *P. Hartwegi*, 5 feet (removed), killed. *P. Llaveana*, 3 feet, injured; and *P. radiata*, 1 foot (removed), much injured, leader killed.

Cedrus libani, *africanus*, and *deodara*, 20 feet each. *C. libani* was not removed, but more leaves fell than was usual; yet it commenced growing as usual, and another plant of it (2 feet) was removed and uninjured. *C. africanus* and the *Deodara* were uninjured; but another plant of the latter, 18 feet high, standing in the same piece of ground and not removed, lost every leaf, the leader killed 18 inches down, and several of the branches killed, and all more or less injured, but most on the north side. Where not killed it is getting feathered again.

Arancaria imbricata, 18 feet and very strong, with fourteen tiers of branches, some above 5 feet long. It suffered most on the north, and the end of every branch and lateral shoot was killed, except the four top branches and the south one on the tier below. I cut the dead parts back, and the seven top tiers are shooting at the ends—in fact, all that are alive are shooting and going downwards. There are two branches alive on the eighth tier, two on the ninth, one on the tenth, and one on the eleventh; all the others dead. The leader and top shoots, though green, look weakly.—J. G.

(To be continued.)

AVOIDING THE POTATO DISEASE.

ONE fine day during the month of August, 1854, the writer saw in a field of Wheat a Potato plant growing on the south side of an old high hedge, and about 3 feet therefrom. On the other side of the hedge was a Potato field of eleven acres infested with the disease. Now, the plant in the Wheat field had six stems or haulms, and no disease anywhere about it (for I probed the root and examined the tubers). I asked myself and others the question, "Why was this one plant not diseased, while others only 6 feet distant were diseased and decomposing?"

Every one seemed to think they could not perceive any difference nor assign any reason for the difference already (to me) apparent. I, therefore, determined to find out something to convince them that there was a very great difference. But I utterly failed to do that, and I have no doubt that I shall not be able to convince some of the "sons of toil" of a fact very common and so frequently met with, that it is disregarded at the present day. The fact is this: There are certain bounds to all cultivated plants beyond which it is impossible to carry them by superior cultivation without producing disease and ultimately death, of which I hope to give instances at some future time.

I found the Potato in the Wheat field had been part of many more which had been left in the ground the year before; for Potatoes are considered a good till for the succeeding Wheat crop. The first difference, therefore, was, the one was growing naturally, the others were cultivated; 2nd, no manure was applied to the first, the other had 12 tons of farmyard dung and 1½ cwt. of guano per acre; 3rd, the temperature in the sun of one was 111° at times, on an average 98°, mean humidity 76° (saturation = 100°), the other in the sun (highest) 105°, mean 89°, humidity 84°; 4th, the haulms of the first were healthy and decayed naturally about the 27th of September, the other was dead on the 9th of that month; 5th, out of fifteen tubers none were diseased. As for the others, above one-third were diseased and one-fourth were rotten.

In a garden belonging to a cottager within a mile of the Bradford post-office is, or was, a Potato plant or plants that has or have grown naturally for nearly four years, and last year the produce was a fine sample, prolific, and free from disease. This year the plants promise well, free from disease, although some not 3 yards away are diseased.

That manuring has much to do with the disease is evident. But there are other agencies to which disease may be partly owing; I allude to the gases present in the air at peculiar times, particularly ozone—a modification of oxygen as yet but little understood, present in the air in very small quantities at any time, as shown by Dr. Moffatt's ozonometer. That it influences Potatoes

is evident from Potatoes growing best and the freest from disease where it is most abundant. On the sea coast (particularly in Cornwall as shown by the tables of meteorology kept there), the vicinity of rivers, as the Humber, &c. It is frequently not perceptible in or near large towns. Where it is, however, vegetation is early, rapid, and abundant, the locality healthy; but where absent for any length of time the reverse is the case. Its presence is owing chiefly to atmospheric electricity.

Now, allow me to endeavour to explain the remedies which I have repeatedly and carefully carried out on a small scale, leaving it to others to try them on a larger scale if they think fit.

I endeavoured to find out the cause by experiment, and removed the effects of the epidemic by withdrawing or removing the cause. To produce any lasting results it is necessary to raise the Potato plants from seed, thereby escaping the virulent influence of a contaminated set, and by careful (but not high) cultivation in a garden for two years the tubers will be ready for planting in the fields, where, instead of planting the set in or on the manure, the land should be manured in the autumn; the rows to be 3 feet apart instead of 2 feet, which allows the sun and air to act between the rows, producing a shorter and sturdier haulm. Planting early (the last week of March or beginning of April is the best time), not more than 4 inches deep, but earthing up somewhat high, hoeing freely between the rows to keep down weeds; also, promoting by the same means increased warmth of the soil by its absorbing the heat of the sun more rapidly than is done by a hard, shaded, weedy surface. Evaporation of water from the soil is also promoted to a greater extent than usually takes place from a smooth or unstirred surface soil. Grown in that manner I have evidence that the seedling Potatoes will not be attacked by the disease, nor become diseased when stored, for a period of eight years from the seed, how much longer I know not; but are not six years' crops worth the trouble of raising from seed?

As an evidence of the above facts I beg to refer the reader to the Fluke Kidney, for after ten years of subjection to high cultivation it withstands the disease better than any other Potato, and it was not diseased at the end of seven years' growth.

Another system answers nearly as well, and as it deals with existing varieties I will detail the plan somewhat minutely. Plant none but sound tubers in rows, 4 inches deep, 3 feet apart, and 1 foot 6 inches between plant and plant in the rows, in land not very rich, and instead of manuring them at planting, throw on 2 cwt. of salt per acre evenly over the surface, treating the plants afterwards in every way as described for the seedlings, never allowing so much as one weed to remain. The beginning of November cover the rows, and, in fact, all the surface, with 3 inches or 4 inches of litter (straw or bracken, &c.), so as to prevent the frost reaching the tubers. Allow them to remain in the ground until March following, and then plant the sound (there will be none else left) tubers.

The land should be well drained. The after-treatment to be the same in every way as for the seedlings. Unless the land be rich no disease will prevail, but if it be rich the disease may come or happen, and measures must then be taken to arrest its progress. I will state how to do that hereafter.

Here I would observe that the Potato should never be planted after seeds (Clover, &c.), nor on newly-turned-up pastures. On such land there is a larger growth of haulm, a greater weight of produce, and a corresponding larger amount of epidemic.

The following manure will be found to produce good crops of Potatoes:—Salt, 2 cwt.; muriate of potash, muriate of ammonia, and phosphate of lime, of each 1 cwt.; spread evenly over the surface and ploughed in. This manure has the property of producing a stout good haulm, and the plants retain their foliage considerably longer than when ordinary farm or stable manure is employed. With this manure Potatoes have been grown at the rate of 18 tons per acre, and what was far more important, they were free from disease, although grown on the same land for four years.

Allow me to remark here, that the disease does not attack crops grown on heavy land so early as those grown on lighter soil. The reason is this, clay land is colder than sandy, the drainage of both being equalised, and the elevation being the same in both, there will be a difference of the temperature at 1 foot deep in favour of sandy or light land of 3°. Consequently, light soil is earlier, and owing to its being so produces a fit and proper medium for the spores of the Potato fungus ten days or a fortnight sooner than in heavy or clay land. For until a proper state of the plant be attained the fungus does not act upon the plant. (See page 302.)

Now, we will deal with remedies. It is presumed the disease is destroying the haulms and descending to the tubers, and as soon as the brown spots are perceived near the surface of the soil on the haulms it is high time to commence operations.

Take an old scythe and cut off all the haulm close to the surface, and if the weather be dry the tubers must not be taken up; but if the season be rainy the sooner they are taken up the better. Why? Because the fungus has already entered the cellular tissue of the Potatoes, and the wetter the soil the sooner the fungus matures or performs its work. We prefer taking the tubers up at once without trusting to the weather. And it is a point worth the consideration of practical men who value profit, and the attention of consumers, which is the best way of ripening the "unripe tubers." Should they be kiln-dried or by some means more approaching to a natural process? I prefer the latter, because kiln-dried Potatoes wither, owing to their parting with a considerable portion of water, and they lose weight. A peck were placed to dry or ripen in a stove at a temperature of 108°, weighing previously 20 lbs., at the end of two weeks they weighed 15 lbs. Moreover, what Englishman would purchase withered and light Potatoes when he had "plump" ones offered at a higher price even?

The best plan to ripen or harden early Potatoes is to expose them to the full influence of the sun on the soil in a dry place, or, should the weather be cloudy and wet, under a shed or some such building. This is a plan now generally adopted in the early-producing localities of Yorkshire, and it answers the purpose well. I well remember first seeing it tried in the year 1818, and an acre was planted with Potatoes and sold for £65 the 1st of July, 1849. This plan, however, will not do for late sorts, exposed Potatoes turn green and are unwholesome: therefore, we must adopt other means.

As the Potatoes are lifted they may be placed in a ridge-like heap 6 feet wide at the base, and piled up to about 5 feet at the perpendicular, and, of course, to any length, covering them with straw 2 inches thick at the end of each day, and inserting a two-inch drain-pipe 6 inches within the Potatoes at the top, at three-foot intervals, and allowing the pipe ends to be open exteriorly as well as interiorly. A few spadefuls of soil should be placed on the straw to prevent its being blown off by the wind. In a few days a moist heat of from 85° to 100° will be generated, and the steam passes out through the drain-pipes. In a month or six weeks the Potatoes should be sorted, taking the small and diseased ones out. They may then be stored away in the usual way, and the small and diseased used for feeding purposes.

By the above plan the heat is produced spontaneously, but whether by the decomposition of the liberated watery juices, or some other process, I have not been able satisfactorily to determine; certainly not owing to the decomposition of the tubers from disease. The Potatoes lose little weight, contain more starch, are more wholesome and nutritious than when first taken up, and they are not liable to become diseased afterwards—that is, through the winter.

If we kiln-dry Potatoes as has been recommended by a learned Russian Professor, we find they are not liable to become diseased through the winter, and will keep a long time. But, we find also, that Potatoes so treated become black after being boiled when placed on the table. In fact, they are no better than Potatoes that have been salted late in the season to prevent their losing weight owing to their sprouting, which salt prevents. And if we look at the magnitude of the Potato crop in this country, no less 750,000 acres, equal at the rate of twelve tons per acre to 9,000,000 tons, where are we to find means for drying that enormous quantity?—GEORGE ABBEY, *Gardener to E. Hailstone, Esq., Horton Hall, Bradford, Yorks.*

CULTURE OF THE GRAPE VINE.

(Continued from page 359.)

GRAFTING.—The border of a viney may have been properly drained, heated, and made of the best soils, the Vines planted and growing healthily and satisfactorily, and yet some kinds that have been planted may either not be true to name, or newer and better kinds may be desirable. The owner, in order to save time, may graft the superior sorts upon these healthy Vines. Procure the scions, choosing well-ripened, short-jointed wood a year old some time before the season arrives, and lay them in by the heels in sand in a shady place, and have ready some grafting-wax or clay.

The *grafting-wax* is made of red or black sealingwax, mutton fat, and white wax, in equal parts; melt the fat and white wax together, and then put in small pieces of the sealingwax, stirring the mixture constantly till all is thoroughly mixed; some then add about an eighth of honey to the mixture, which serves to keep it longer. Whilst hot pour it into a glazed pot or tin, and keep it slightly stirred till it cools; it is then fit for use.

Grafting-clay is formed of some very strong loam of a clayey character, add a little water and beat it with a mallet, and knead it with the hands until it is soft and putty-like, and of a uniform consistence. Then obtain some horsedung, dry it slightly, and then rub it through a half-inch meshed riddle. Then get some cowdung, just dropped, and mix the three together in equal parts, knead them together thoroughly, and add a little finely-chopped hay, also sifted: this prevents the clay from cracking. Then put through a very fine sieve some dry ashes, and keep them dry in an open vessel. When the clay is applied to the graft the hands should be dipped in the ashes, and that will enable the workman to finish off the ball neatly and close around the graft. It is immaterial whether the wax or the clay is used, though I should prefer the former if it could be had.

The right season for grafting the Vine is just when its buds are beginning to swell; the scions being kept at rest till that time arrives.

The best mode is the common one, named whip or tongue-

grafting. The engraving (*fig. 1*) illustrates this mode—*a*, the scion; *b*, the stock. Choose a well-situated branch or lateral near the bottom of the Vine; cut off slanting the head at a part where a scion can be fitted on best; then cut a slice off upwards about $1\frac{1}{2}$ inch long slanting inwards; then make an incision downwards about the centre of the last-made cut, taking great care that the knife does not slip through nor yet injure the bark on each side; then prepare the scion. It should have one bud near the top, and another near the bottom; make a sloping cut downwards as near the same length as that on the stock as possible, and in or near the centre of this make an upward cut which forms the tongue; lay the knife down, and gently thrust the tongue into the cut on the stock. Every part of this operation must be done with a knife as sharp as a razor, and every part should fit neatly and perfectly. One point must be particularly attended to, and that is, that the bark of the scion and the bark of the stock meet exactly together on each side if possible; but if the scion is smaller than the stock, then the barks must meet on one side and at the bottom. This being successfully accomplished, then tie with matting the scion pretty firmly to the stock, and then cover the whole of the cut parts with either

Fig. 1.



Fig. 2.



the grafting-wax or grafting-clay, excepting the uppermost bud of the scion, which completes the operation. If a little moss is tied gently round the clay-ball, it will keep it moist and preserve it from cracking. If the scion pushes freely, and when it has made a few leaves, it will be necessary to remove the wax or clay, and untie the mat and tie it again more loosely to allow the parts to swell in the natural way. By thus grafting on a lateral the main stem of the Vine may bear its crop of fruit; but, in order to strengthen the shoot the scion is making, all the other shoots on the main stem should be kept closely shortened, and no more wood and leaves allowed to grow than are necessary to bring the crop of fruit to perfection: hence, if any shoots are barren, let them be pruned away entirely. In the autumn the main stem should be cut away down to the graft, and the fresh kind trained up in its place; or, if the scion has not grown strong, the lower half of the laterals may be pruned off, and the upper half left on to bear a few bunches the succeeding year, previously to removing the main stem. Another mode of grafting the Vine is one that has been practised very successfully. When the plant is in leaf, head down the stem to the

point where it is to be grafted, and split the crown, inserting the scion cut into a wedge shape, on one side of the split, taking care that the barks of the scion and the stock fit exactly (*fig. 2*). Bind it round with a piece of matting, and cover with damp moss or clay. If the stock is very thick, two scions may be inserted, one on each side of the split.

INARCHING.—This is a kind of grafting very suitable for the Vine, and also very safe, for if it is properly done and at the right season it cannot fail. As in the case of grafting above described, the stock should be healthy both at the top and at the root. Some writers recommend strong-growing varieties, such as the Syrian and White Nice, to be planted purposely to be grafted or inarched with weaker-growing sorts, such as the Frontignan, thinking thereby to improve and strengthen them. I, however, never found that such stocks had any perceptible effect. I would as soon graft or inarch upon a healthy Frontignan as on any other kind. To graft upon unhealthy Vines thinking to obtain good Grapes from such grafts is simply ridiculous.

Inarching is grafting by approach—that is, a branch or stem of one kind is brought into contact and joined to a branch or stem of another, each kind growing on its own roots at the time. I have frequently observed in hedgerows and thick coppices, branches that have been rubbed together by the wind till the barks were worn away, afterwards united together and form as it were branches of the two trees, which if cut off from the parents of either would live and grow like adopted children.

Procure the new or superior kinds in pots, and, as in the case of grafting with scions, let the stock be a little advanced in growth, and the one to inarch upon it not so forward. Place the pot securely, near enough to the stock, in a convenient position to form a junction with it. Place the shoot of the one in the pot close to the stock, and then pare off with a sharp knife a slice from each of equal size, bring the two wounds together as exactly as possible, fitting bark to bark; hold them firmly in that position, and tie them together firmly, but not so tightly as to bruise the bark of either. Then tie a little moss round the junction, and moisten it every day with the syringe. Should the sun shine strongly upon that particular point, it will be desirable and useful to shade it either with white paper or canvass for a week or two. The sap in action on the growing stock will soon flow into the branch united to it, and will cause the buds above the junction to push quickly and vigorously. Keep the soil in the pot moist, and rub off two or three buds below the junction. One or two near the bottom may be allowed to grow, to draw up the sap; and thus, when the part above is firmly united to the stock, the pot Vine may be cut off at the junction, and made use of, either to be planted out, or grown to bear fruit in a larger pot.

Inarching on young wood of the present year's growth is often practised—indeed, preferred by many; but it requires greater care, for the young wood is tender, and, consequently, more liable to be broken than year-old wood. Choose, as before, a young shoot near the bottom of the main stem, one that has grown some length should be preferred, and inarch upon it when it has acquired some solid wood, just when it is beginning to change colour. The plant in the pot will also have grown some length, and then place it in position, so as to be convenient for inarching, fixing the pot securely so that it will not slip away; bring the two shoots together, and take a section from each of the equal size; then fit them closely and tie securely, but not so tightly as in year-old wood. This young wood unites even more quickly than older wood. The junction will be complete in about a month or six weeks; whilst it is growing let all the bearing-shoots be kept closely stopped, and any that are barren should be pruned close off. Afterwards treat the Vine and its successor the same as is directed for those inarched on year-old wood. By either of those methods a vinery filled with inferior kinds may be renewed with superior and newer kinds in a much shorter time than by grubbing the old Vines up, and replanting with year old Vines.

RAISING NEW KINDS.

The only way to raise new kinds is by seed, and in order to multiply the chances of obtaining superior or improved varieties to cross them. Large-berried Grapes are often mere water and sugar, yet large berries are desirable: hence, in order to throw a superior flavour into their progeny, the pollen from some highly-flavoured variety should be employed as the fertiliser; and to make more sure, cut off all the anthers just before the pollen vessels burst, and then dust the stigmas with the

pollen from the full-flavoured variety. I have often wished to get the fine flavour of the Grizzly Frontignan thrown into the Black Hamburgh, and, I have no doubt, it may be done by fertilising with the pollen of that rich-flavoured variety the Black Hamburgh itself.

Save the seed from well-ripened fruit, and let it be properly dried and preserved till February; sow then in pans in a rich, sandy soil, and either plunge the pans in a brisk bottom heat, or place them on a hotbed in which Cucumbers are, or intended to be, grown. In a month or five weeks the seedlings will appear, and then they should be potted off in small pots, to be repotted every six weeks—in fact, treated just the same as plants raised from eyes. Train the young shoots upwards without stopping for that year. In the autumn following cut them down to two buds, and train up one shoot from each; if well managed, some will bear fruit the third year, and all, certainly, the fourth. Superior kinds may have a fair trial, but tasteless wild growers may be at once thrown to the rubbish-heap. There is considerable scope yet in raising newer kinds; we require hardier sorts, larger bunches, larger berries, freer setters, and better flavoured kinds than we possess at present.—F. APPELEY.

(To be continued.)

THE CAPE OF GOOD HOPE VINEYARDS AND THE VINE DISEASE.

(Official Report.)

(Concluded from page 364.)

ARRIVING at Eerste River on the evening of the 7th inst., our inspection of vineyards terminated. The Honorary Secretary of the Vine Disease Commission having visited this place some time before to recommend the use of sulphur for the Vines, and to show the various methods of applying it and the apparatuses used, an inspection on our part was not deemed necessary. The vineyard of Mr. J. D. Thompson, M.L.A., was, however, visited, and we found the work of sulphuring going on vigorously, the quantity applied liberal—watering the Vines previous to the sulphur being applied. All the vineyards in this neighbourhood are more or less diseased. Sulphur is generally applied. The locality appears well ventilated by south-east winds.

Our notes taken during the tour are exhausted. We will conclude with a summary and a few general observations. During the whole tour and on inspection of upwards of fifty vineyards in Great Drakenstein, Klein Drakenstein, Paarl, Klappmuts, Stellenbosch, and neighbourhood, Moddergat, Somerset (West), and Hottentots' Holland only two vineyards were found free from the prevailing scourge—Mr. P. Cloete's, Klappmuts, and Mr. J. Roux, Weltevreden, Moddergat. The crop in both these places is late and the berries small. Much vigilance should be exercised as the fruit progresses to check the disease by the immediate application of sulphur, should it unhappily make its appearance.

We may safely assume the disease is general throughout the districts visited. Our own inspection, and the most reliable information procurable regarding those vineyards we did not visit, too well assure us of the fact.

Sulphuring the Vines is only applied to a very limited extent, and in nearly all cases very imperfectly. Some distrust regarding the efficacy of sulphur we met with in some quarters, and it is to be feared that distrust will not be removed by the want of success where the remedy is improperly applied, either through indifference, a false economy, or the want of means. Considerable experiments are being made at some places with brimstone fumigation, lime in a dry and in a liquid form, burning weeds, dusting with powdered charcoal, watering with a decoction of tanners' bark, &c., &c. All these things it was our duty to condemn as useless expenditure of time and means, which might be profitably employed applying the proper remedy. We explained all those things had been tried in Europe without success, by the most practical hands and scientific minds. That some of them will produce vigorous appearances in the plants acted on, there is no gainsaying, for they are excellent manures; but the vintage is not secured by the application to diseased Vines of lime, charcoal, or guano-water.

With reference to brimstone fumigation, it will be found equally successful in destroying mildew on the Vine. The difficulty is in its management; and on a large scale, after the difficulty of applying it is surmounted, it will be found far more

expensive than dusting with flowers of sulphur. In hothouse cultivation, even where the atmosphere—temperature and moisture—is wholly under command, it is difficult and dangerous to apply. Sulphur begins to burn at a temperature of 302°, but long before that is reached, at about 220°, it begins to fuse, melt, and give off volatile fumes, which is the active agent in destroying the oidium—the difficulty is, even in an artificial atmosphere wholly under command, to bring these fumes in direct contact with the diseased objects required to be acted upon. In the open air this difficulty is increased. In our mind there is no question of its destroying mildew, but its application is utterly impracticable to our vineyards.

The disease was detected on the Grapes this season about the same time as last season—the latter end of the month of October. All fungi are rapid in development, some live only to die—springing up, perfecting their organs of reproduction, and perishing in a single night. Mildew fungus, however, takes a little longer time, and exists on the Grapes before it is detected by the naked eye.

The Vines first affected this year are those which were diseased last year, and on them the disease is now most virulent. This is the course expected. The disease last year was allowed to grow, and perfect its seeds in different places; here and there winds and other causes have carried the seeds over the entire province (we believe), and now that a favourable season has arrived, and a proper matrix to deposit themselves in is presented, their development is rapid, and they burst forth with all the vigour of young life.

The disease first attacks the Vines on the highest situations and driest soils in a vineyard; and, at the present time, is most virulent on Vines in such situations. The berries, it will be observed, are more liable to be attacked at a particular stage of their existence than at others. Vines in early situations (elevated and dry) first arrive at that particular stage when the berries present the favourable medium for the development of the disease; it follows that the disease, unchecked, is always in a more advanced and rampant state on these early Vines. The Steen Grape, as grown in our vineyards, is the most severely attacked of all others, and the development of the disease far more rapid on the fruit, leaves, and branches than on any other. The Steen Grape Vine is a strong grower, and should never be planted at less than 6 feet apart. We find them only 3 feet and 3½ feet; and from their strong growth thoroughly excluding the sun and air from the soil, and preventing that reciprocity between roots and leaves which secures the healthy action of the whole plant and immunity from disease. On some farms visited, we found every other row of the Steen Grape had been thinned out, thus leaving the rows 6 feet apart, but the plants in the rows still 3 feet from each other. Where this had been done, the disease, although general, was less virulent than in those left at their original distance. On young plantations of Steen, where the Vines have not yet excluded the action of sun and air on the soil, disease is found less intense.

We found from personal inspection that the Vines growing on damp spots in vineyards well ventilated by currents of air passing through, were not so generally affected with disease, nor was the disease so virulent as on the Vines growing on high dry situations. It must be remembered, however, that in such spots the Grapes are late, and may not present the proper matrix for the generation and development of disease.

Irrigation, where practicable, has been much resorted to as a means of checking and preventing the spread of the disease. Several farmers assert that since they began to irrigate, the disease has not advanced nor spread. That, of course, could not be determined during our short stay at each farm. The popular belief is, that an abundance of water to the roots rapidly increases the size of the berries, and places them beyond the stage of danger.

Few people, not acquainted and conversant with vegetable life, and in particular the cryptogamic division of it, can divest themselves of the idea that moisture, mildew, and mould are inseparable. No fungi is an aquatic, or even sub-aquatic—no one looks for Mushrooms in swamps, or in the damp furrows of a field. Moisture and a free circulation of air are fatal to most fungi. Mildew will form on leather or any other proper medium in the driest room, where the circulation of the air is sluggish, when a hygrometer would indicate nothing; it will form on convenient mediums in dry cellars or vaults with a sluggish circulation, and where a piece of old wood lifted and let fall would raise a cloud of dust. In short, fungi will generate

and develop itself wherever convenient mediums are found, without extraordinary dampness in the earth or atmosphere.

In our experience of the management of artificial atmospheres we find mildews (oidiums and erysiphe, and others) produced rapidly on plants growing in soil that is allowed to become dry, while the atmosphere is charged with the usual moisture. This state of things produces want of genial action between the roots, leaves, and fruit. Under such conditions mildew makes its appearance, particularly if the temperature is lowered or raised. Farmers in England know that if damp weather in July succeed that which has been bright without the intervention of rain, the Wheats are in general injured by rust—fungi; and the farmer at the Cape is aware that dull, damp weather, succeeding our usual bright sunshine without the intervention of sufficient rain to moisten the soil, produces the rust or smut. A thorough saturation of the soil would produce reciprocity of action between roots and leaves, or stem, and immunity from disease. Gardeners in England can only produce autumn crops of Peas, &c., by destroying the mildew attacking the plants by copious waterings and thorough saturation of the soil. Mildew is destroyed on wall Peaches in the same way and by a vigorous use of the syringe.

Watering the foliage and other parts of the Vine before applying the flowers of sulphur is strongly advocated in some quarters, but as the sulphur is quite insoluble in water, it is clear, water cannot assist the action of the sulphur on the disease. Without it can be shown the application of water is beneficial in some other way, we decidedly advise its discontinuance before dusting. It is a waste of time at a critical moment when all hands should be applying the sulphur.

It will be seen by those who have followed us thus far, that vineyards densely shaded and sheltered by trees and rising grounds, and where the Vines are a "thicket" from close planting and luxuriant growth, are, in all cases, most severely affected with the scourge. The Steen Grape Vine is one of the strongest and largest growers, growing, in fact, to occupy a space double the size usually allotted to it. This Grape is the most severely affected with disease; it may naturally be more disposed to its attacks, but the want of a free circulation of air amongst the Vines, and the exclusion of sun and air from acting on the soil of the vineyard from the dense shade, must be ascribed much of the extreme virulence with which the variety is attacked. The Steen being an excellent wine Grape deserves a trial on another system of cultivation before being discarded by the wine farmer as more liable to disease than others.

Where plantations of the Steen now exist, planted at the old traditional distance of "three feet by three," let them be thinned out to stand 6 feet apart, plant from plant. Prune late, so as to allow a little bleeding, which would check any disposition to luxuriant growth, produced by the larger feeding-space of the roots. The horsehoe, or "scuffer," would be sufficient for digging and cleaning the ground, and more economical than manual labour. Treated in this way, the Steen may be found no more liable to the scourge than other varieties.

Generally, the Grape Vine is planted far too close at the Cape; and no judgment whatever appears to be exercised in the allotment of space to size. We found, during our late tour, extensive tracts recently planted with all sorts of Grapes, all at the same distances; Pontars, Frontignacs, and Muscadels, Green Grape, French Grape (white Nice), and Steen Grape. The last three should, under all circumstances of soil, &c., have double the space of the first three. It appears to us that there is much room for improvement in the selection of sites for vineyards, and in the mode of planting and general cultivation of the Vine at the Cape, and at a future time we will take leave to lay our ideas on these points before the wine farmers.

The condition of the Peach, and the loss of crop this season, is ascribed to the *Oidium Tuckeri*. This, however, is not the case. We were unable to detect mildew on any of the numerous Peach trees examined. In cold climates mildew is often present with other diseases on the Peach, but it is a different species from that attacking the Vine. The mildew of the Peach is *Oidium erysipoides*, long known in Europe. Practically, its attacks on the Peach are found more severe in dry springs than in those that are genial and moist. The blistering and curling up of the leaves, and the dropping off of the blossoms before setting, and consequent loss of crop, is what we have now to do with. It is produced by the state of the weather and by a want of reciprocity between the action of the roots and leaves when the leaves are about half grown—the leaves drawing more on

the roots than they are adequate to supply. The sudden warm weather we had during the latter end of August brought into strong action the stem and young expanding leaves, while the roots in the cold soil, not yet warmed by the gradual heat of the sun's rays, were unable to send into the leaves that supply of sap so necessary for their development—they began to curl and bluster in the way we find them. The leaves being in this state, the proper elaboration and evaporation of the sap could not go on; the plant only opened its blossoms to shed them. As the soil warmed, and the proper reciprocity began between roots, leaves, and branches, the blistered and curled leaves were thrown off, and the trees produced the fine healthy foliage we now find them clothed with. The crop, however, is lost for this season. Total Vines, 3,410,000.—JAMES MCGIBBON.

VARIETIES.

SOLANUM FENDLERI.—In Western Texas and New Mexico a new species of the Potato was discovered some years ago, which, from its being so closely allied to the common Potato, great expectations were formed that it might resist disease, and, perhaps, supplant the common Potato. As we believe Mr. Fendler, the distinguished botanical collector who discovered it, and in whose honour it was named, is now engaged in connection with the Botanical Garden of St. Louis, we call attention to the matter, in the hope that he may be able to put some parties on the track of introducing it for experiment.

FERTILISER FOR CABBAGE.—Superphosphate of lime, especially when mixed with some rotten wood (not pine wood) and worked into the ground, has a powerful effect on Cabbages.—(*Cotton Planter*.)

APPLES IN OREGON.—This is becoming a staple crop in Oregon. The *O. Farmer* says one firm in Portland have been "for a long time past bringing over one thousand bushels per day."

FAEFUGIUM ORANDE has been found quite hardy on the grounds of Hovey & Co., Boston, Mass.

TO STOP LEAKAGE IN HOT-WATER PIPES.—Get some iron borings, or filings, and mix them with vinegar, forming it into a salve; with this fill up the cracks where the leaking is, and if the pipe has been previously dried, and is kept dry until this has become quite hard, it will never fail to effectually stop the leakage, and will stand for a length of time. If an iron pipe should burst, or there should be a hole broken into it by accident, a piece of iron may be securely fastened over it, by bedding it on, in a salve made of iron borings and vinegar; but the pipe should not be used until it has become perfectly firm.—(*American Gardener's Monthly*.)

THE ILLUSTRATED BOUQUET.

THE twelfth part of this fashionable book of flowers—the part for past July—completes the second volume of the work; a title page and ample indices accompany the part just issued. Plate 17, with which this part opens, is filled with the charming *Convolvulus mauritanicus* by Mrs. Withers. This is the best hanging-basket plant in cultivation in our opinion. We have seen a perfectly developed specimen of it at the Wellington Road Nursery, in the spring of last year, and it was shown at the opening exhibition of Kensington Gore last June. It is a greenhouse plant, requiring the same treatment as *Petunias* and *Verbenas* in-doors, and like them it lasts a long while out in beds, or as edgings to those of considerable size. The basket and the natural habit of the plant are so happily set off by Mrs. Withers in this plate, that it may be said to be one of the best efforts of her untiring pencil. Under this lovely picture we have a selection from all the hanging-basket plants in cultivation. The names being arranged in four sections, according to the size and substance the plants attain to under ordinary treatment—a most valuable list to all amateurs and to many gardeners in the country. Plate 48, a bird's-eye view of the Wellington Road Nursery. Plate 49, also by Mrs. Withers, represents six kinds of the best of the new breed of *Tropaeolums*—that is, the cross bred from *Lobbianum*. The colours are most artistically and harmoniously placed in this plate, which is a snapper to students who may be studying the art of designing composition flower gardens. The next plate is occupied with *Epigæneum leucobotrys*, one of the prettiest gems in cultivation, for which the Floral Committee gave its highest award last autumn. It is a dwarf

greenhouse shrub, with long, dense clusters of ivory white berries, and each berry with a jet black ring near the end of it, hanging down like fairy Grapes, if there are such. To this succeeds a plate of Pomponé Dahlias, vulgarly called Tom Thumbs and Liliputians. They stand exactly in the same relation to the large florists' Dahlias, as the Pompones do to the big Chrysanthemums. They are as varied, or soon will be, as the titles among the peerage of their race; but six only, how-

ever, could be exhibited on one plate. Here, again, Miss Sowerby, from whose pencil we have this and the last plate, has balanced and contrasted the colours exceedingly well. And the last plate is of one of the new hybrid race of Coral trees, called *Erythrina Belangerii*. Mr. Bedwell was the first cross-breeder who broke into the Coral trees some years since in Australia; since then, continental breeders have been busy on them, and this *Belangerii* is one of the best of their productions.

CYPRIPEDIUMS.

THE generic name has now a classical derivation, from *Cypriis*, Venus, and *podion*, a shoe or slipper; but our early herbalists dedicated the genus to the Virgin Mary, and we find it in their pages under the title of "*Calceolus Mariae*, Our Ladies Shoo or Slipper," whilst the Germans devoted it to her High Priest, and called it *Papen schoen*, or Pope's Shoe. In those days but one species was known, but modern collectors, stimulated by the prevailing taste for Orchids, have largely added to the number of known species. The following are two of the hardy kinds, and were thus described in the now-extinct "Gardeners' Magazine of Botany."

CYPRIPEDIUM ATSMORI, *Morren*. Many-leaved Japan Lady's Slipper (*La Belg. Hort.*, i., t. 21).—Nat. Ord. Orchidaceæ, § Cypripediæ. Syn., *C. calceolus*, *Thunberg*; *Atsmori* so of the Japanese.—A leafy-stemmed hardy perennial, growing about a foot high, with acute, lance-shaped, plaited, smooth leaves, and about two flowers, of which the labellum is yellow, slipper-shaped, or calceiform, and the sepals and petals rich purplish-brown, the petals with purple hairs at the greenish-yellow base. It is allied to the true *C. calceolus*, according to M. Morren, from which it differs in having its leaves more lanceolate and glabrous, in the bracts being much more narrowly lanceolate and pointed, in the flowers being altogether narrower and more meagre, in the base of the petals being distinctly hairy, in the remarkable narrowness of the sepals, in the less ventricose pouch, cleft rather than toothed in front, in the lengthened trowel-like form of the sterile stamens, and in the longer filiform base of the lateral stamens. From Japan. Introduced by Dr. Von Siebold, in 1830, to Belgium. Flowers in summer. Probably cultivated in the Botanic Gardens of Ghent and Leyden.

CYPRIPEDIUM GUTTATUM, *Swartz*. Spotted-flowered Lady's Slipper (*Flore des Serres*, vi., t. 573). Nat. Ord. Orchidaceæ, § Cypripediæ. — A beautiful little herbaceous perennial. It has a short stem, bearing a pair of ovate-elliptic, amplexicaul, plaited leaves, with the margins and ribs hairy. The flowers, one to each stem, are white, beautifully blotched with rose purple. The sepals and petals are shorter than the lip, which is subrotund, with a plain surface. The whole plant is under 6 inches high, the flowers measuring about 2 inches lengthwise. It grows in boggy places in cold countries, but appears shy under cultivation. From Siberia and North America. Introduced originally in 1828. Flowers in summer. M. Van Houtte, of Ghent.



1. *Cypripedium Atsmori*.

2. *Cypripedium guttatum*.

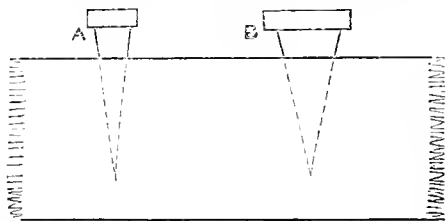
MECHANICS AND MATHEMATICS APPLIED
TO GARDENING.

(Continued from page 379.)

THE WEDGE.

THE wedge may be described as two inclined planes placed base to base. Nails, the edge of an axe, needles, brad-awls, and many cutting instruments are able to penetrate the substances which they are required to pierce, by being of a wedge form.

We showed, in considering the inclined plane, that the more gradual the slope—that is, the more acute its angle, the less force was required to impel up it a weight, and precisely for the same reason the more tapering—that is, the more acute the angle of a wedge, the less force is required to make it penetrate. Supposing the nail A is one-eighth of an inch in diameter at its widest



part, and requires a force of 200 lbs. to drive it home, then the nail B, being one-fourth of an inch in diameter, would require 400 lbs. to do the same. The wood and the lengths of the nails being alike.

Even where the angle of the wedge and the force of each blow are accurately known it is difficult to calculate the power of the wedge exactly. For example, in splitting either timber or stone, the divided parts act as levers to pull those parts asunder, and, consequently co-operate with the wedge in effecting the division. Thus, if a log of timber 6 feet long is split by the wedge through half its length, the other half is much more easily split, because the two sections of the half divided act as levers, and their assisting force progressively increases in proportion as the cleft is extended by the wedge.

Mr. Ferguson correctly observes that the wedge is an important mechanical power, because it effects divisions which could not be effected by the lever, the wheel and axle, or the pulley, for the force of the impelling blows makes the cohering parts vibrate, and thus enables them to separate more easily; yet, we should scarcely have noticed it if we had not seen it employed very efficiently in levelling down a ridge of gravel so hard and conglomerate that but for the assistance of a row of oaken wedges the labour would have been tenfold.

In this instance a straight line was marked with the pickaxe at about 2 feet from the brink of the surface of the rocky gravel and along that line about twenty obtuse wedges were driven, separating a mass about 40 feet long, and rendering it easily precipitable into the hollow below which was required to be filled up.

(To be continued.)

SPORT FROM GERANIUM FLOWER OF THE
DAY.

"AN OLD SHOWMAN" in a contemporary publication recently speaking on the variegation of Geraniums says, "He understood Flower of the Day came variegated from a seedling, the only variegated Geranium on record that did so to his knowledge." Last year my plants of this Geranium were sorry scrubs, but I planted them during the summer, wet and cold as it was. There were two or three of them threw up plain shoots from the crown of the plants, which I, in a fit of curiosity, took off and propagated. This year I have them planted out; the habit of the sports is stronger than the parent, and the colour of the flower is deeper. I enclose a truss and leaf. How does Mr. Beaton's theory of the cause of variegation in plants being some disturbance at the birth of the seed stand affected by this? Does his argument cut both ways? Is this not rather a corroboration of the views of "AN OLD SHOWMAN," that variegation is caused by disease, and *vice versa*? Is there such a Scarlet Geranium as Queen's Perfection? I enclose you a truss and

leaf of one I had under that name from Clumber Park last year. —N. H. POWNALL, *Holme Pierrepoint, Nottingham.*

[Flower of the Day was a variegated seedling raised by Mr. Kinghorn, and it has been throwing up green sports every year since it was let out. Miller, in his "Gardeners' Dictionary," recorded the first variegated Geranium from seeds—the crimson variegated Geranium, of which there is now a bed full of it on the Rose Mount at the Crystal Palace. Mr. Beaton says that every plain Geranium which throws off a variegated sport, and every variegated Geranium which makes plain sports like that you sent, might have been recorded as variegated seedlings, if people had known how to deal with the seedlings. Mr. Lenox exhibited variegated seedlings, and plenty of them, at the old Chiswick Shows many years ago. Mr. Beaton tells us he had variegated Geranium seedlings every year, except two, since 1845, and now he says he has more of them than he knows what to do with. But he assures us that you have mistaken the views of both the "OLD SHOWMAN" and his own on this matter, and that it would be of no practical use to discuss the question on your issue. He adds that Mr. Knight, who was the founder of the best part of our knowledge of these things, that a diseased fruit tree, a cankered Apple tree say, could not be cured by budding or grafting, and that seedlings from it would inherit the disease. But if you take Flower of the Day as a diseased Geranium, and Alma as one much more affected with the same disease, and cross them, if the theory of this disease is sustainable, all your seedlings ought to inherit it, as seedlings always do, when real disease is in the system of one or both of the parents, as well in the animal as the vegetable kingdom; but your seedlings from those very diseased parents will be healthy. How is that? But trusses of all Geraniums from first to last never did, and never will, travel in letters or close boxes without falling to pieces the moment the box or basket or letter is opened. We could see nothing of your flowers but a confused jumble of loose petals. The way to send Scarlet Geraniums is to cut a long piece of the flower-stalk with the truss when the first flower has opened, by planting the stalk in wet sand, the receiver will see most of the flowers opening one after another; but a truss of open flowers will not remain entire over two miles by post.]

WORK FOR THE WEEK.

KITCHEN GARDEN.

Brussels Sprouts, continue to plant them out, as also *Cape Broccoli* and *Cauliflowers*. *Cabbage*, make a sowing to stand in the seed-bed through the winter; also a sowing of *Red Dutch* for summer use. *Cauliflowers*;—about the 21st of the month is generally selected for sowing them, as also the *Bath Cos Lettuce* to stand through the winter. The ground to be not over-rich to prevent luxuriant growth; to sow thick, and to prick them out in time before they become lanky. *Coleworts*, get out plants on rich ground. *Cucumbers*, the lights may be drawn off those that are in frames during gentle showers of rain, but not when the rain is so heavy as to be likely to injure the leaves. Gather *Gherkins* for pickling. *Dwarf Kidney Beans*, keep the crop closely gathered, for if allowed to remain until they are too old for use, they discontinue to bear as they otherwise would do. *Onions*, sow a good breadth. The *Welsh* is hardy, and the *Deptford* will bear the winter well, but the *Silver-skinned* is most invaluable as a winter crop. Pull up and house those that have done growing. If the main crops have long necks the tops may be broken down; if not, there is no advantage in doing so. *Tomatoes*, remove some of the leaves which shade the fruit from the sun. Keep all the shoots stopped when there is sufficient young fruit on the plants. As the rains are very partial, it is necessary in many localities to water seed-beds and recently-transplanted crops. Keep the soil loose where practicable. Give timely thinnings to the crops that require them, and water afterwards if the soil is dry. *Turnips*, sow the *Dutch* and *Stone* sorts on some spare plots of ground.

FLOWER GARDEN.

It will be necessary to go over the beds frequently, pegging down where necessary, removing decayed flowers, and cutting back such of the shoots as encroach upon the edgings of the beds. During hot weather take care that newly-formed beds of *Pinks* and *Pansies* do not suffer from drought. Finish the layering of *Carnations* and *Picotees*. Pull out decayed petals from the calices where seed-pods are forming, otherwise wet will lodge and the seeds perish. The shoots of those trees infested with

mildew, to be dusted with sulphur vivum. Look over rock plants, pruning back any that are overgrowing choice kinds, in order to give them sufficient time to break again before autumn. Peg down a few shoots of *Chrysanthemums* for layering in small pots; this is better done after the shoots have turned up at their points.

STOVE.

Continue former directions in this house as to heat and moisture, and giving plenty of air. Endeavour to get the *Ixoras* and other such plants to make luxuriant shoots, which, if properly ripened, are sure to produce fine heads of bloom. Pay attention to *Begonias*, *Euphorbias*, and all such winter-blooming plants; and, if not already out, a month's exposure in a sheltered corner in the open air will give fresh vigour to *Luculias*. Expose such plants of *Stephanotis* as have completed their growth to the full sun, both to get the wood properly ripened, and to get them gradually to rest.

GREENHOUSE AND CONSERVATORY.

Look out for mildew on *Boronias*, *Gompholobiums*, &c., and when visible to be dusted with sulphur. Pot *Tropeolums* of all kinds, giving them a free, open soil, with plenty of sand and drainage, to be placed in the open air until the end of next month. Some of the Indian *Azaleas* will now have set their flower-buds, and may be removed to the greenhouse. Stove plants flowering in the conservatory will require attention to prevent them from being injured by damp, especially *Achimenes* and *Clerodendrons*, which should be gone over every day to pick off decayed flowers, &c. Some of the shoots of the climbers on the roof which have done blooming, to be thinned out to prevent them from shading the house too much, as after this time permanent shade should be avoided. It is advisable after this to be anticipating the approach of winter, and to use every possible means to forward the growth of hardwooded plants in order to get it somewhat firm and able to resist damp, &c., as soon as possible. *Pelargoniums* which have been cut down and have commenced to grow, to be shaken out of their pots and repotted in others of smaller size. Give attention to Chinese *Primroses*, and sow *Mignonette* for blooming late in the season. Prick out and pot seedling *Cinerarias* for early blooming. The state of the drainage of *Heaths* and *New Holland* plants to be examined, more especially those plants that have been standing out of doors. *Roses*, *Lilacs*, and other plants for forcing must also be examined, and such as require it to be repotted; plunging the pots afterwards, and watering when necessary.

PITS AND FRAMES.

Some of the first-struck cuttings will now be fit for potting off. Place them in a pit or frame; shade and keep them close until they have established themselves in their pots, when they should be set out in the open air to harden them off before being housed for the winter. Continue to put in cuttings as soon as possible, more especially of the *Flower of the Day*, and the best kinds of *Pelargoniums* for bedding, to get good strong plants before winter. Thin out the *Mignonette* sown some weeks back. Look to *Violets*, and keep the runners removed, and encourage them with manure water once a-week. W. KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

THE weather continuing fine, ran the Dutch hoe among all bushes mostly deprived of their fruit, to destroy weeds when seen, and to dry up the little things almost imperceptible to the eye. Hoed also among all growing crops of the various kinds of Greens, and forked up by the sides of the rows of Peas, and Dwarf Kidney Beans, and Scarlet Runners, to allow air and manure water to enter freely. Watered all these, and Globe Artichokes, and Cauliflowers, and Lettuces as far as our limited supply would permit; making up the deficiency with surface stirring, and mulching with short grass and litter to keep the moisture in. Hardly anything could stand the heat and sunshine of the 12th and 13th without flagging. The roots could not absorb moisture fast enough to meet the great amount of transpiration. Took up Shallots and Garlic, and tied them in bundles to be hung up in a shed. Took up, also, autumn-sown Onions, and laid down the spring-sown ones by pressing the head of a rake close to their necks along the rows. This will

cause the remainder of the strength of the plant to go into the bulbs, and is necessary on another account, as the points of the leaves are getting mildewed from the long-continued dull wet weather. Sowed a piece of Early Horn Carrots for early winter drawing, cooks liking them for soups; also Lettuces, Onions, &c., and a small piece of Turnips for early winter use. Of all Turnips none is esteemed here like the American Red Top. It is excellent when boiled, and when raw is better than half the Melons that are sent to table, if supplied with plenty of water until the day they were cut. Stopped and regulated *Végétable Marrows* and Cucumbers; the Custard has not done so well with us this season. The common Marrow, on the other hand, has done extra well, and really, when cooked young, not so large as two hens' eggs put end to end—I do not think there is much difference between them. A friend says that the size of a hen's egg is large enough; but if not the length of two eggs, the fruit ought to be the length of one and a half, though they are very nice larger than that. Perhaps I am scarcely a judge, as I just manage generally to taste them once a-year. They are altogether too rich an affair for me. Small Custards when from 2 inches to 2½ inches across at the base make an excellent dish when cooked whole, and from three to six served together. When of that size they have scarcely any heart, and can be used with gravy and sauce at once. The common Marrows have hardly any heart either when young; but when they are 4 inches or 6 inches long and from 1½ inch to 2 inches in diameter, the following is a receipt I once had from a first-rate cook, and I can guarantee the turning out of a perfect delicacy to all whose stomachs enable them to feed upon Marrow. "Cut the fruit with about an inch of the stalk adhering. Wash the exterior clean, and place it in a saucepan of water close on the boiling-point; boil slowly for fifteen minutes or more, according to size. When the prongs of a fork enter the fruit very easily it is soft enough and done. A little practice will settle all that. But the fork must not be much used, as much of the delicacy will consist in preventing the water in which the fruit is boiled getting inside. For this purpose the stalk is left long. When soft enough place the Marrow on a plate, slit up longitudinally, remove all the heart or seed part, allow it to drain; place the two halves on a warm plate, and eat with the sauce most approved of." For gardeners like myself nothing is better than a tip of sweet butter, and salt and pepper to taste; and simple though all be, neither Jupiter nor Juno, if such folk ever ate, would by any means shrug their shoulders at it, unless from an excess of pleasure. Pruned and regulated Tomatoes, the first bunches ripening nicely.

FRUIT-HOUSES.

We merely repeated here the work of last week; and in the open garden removed extra shoots and laterals from Peach trees, Apricots, Apples, Pears, and Plums. Gave the latter, the fruit of which were not changing, good lashings with sulphur lime water to remove all trace of fly and insects, and the smell helps to keep off flies and wasps, which threaten to be troublesome since these hot days, and which when they cannot get ripe fruit will fasten on green. Gathered Morelles for tarts, bottling, and brandy, at least the forwardest of them.

STRAWBERRIES.

Cannot yet get at the Strawberry quarters to clear away all runners, though sadly wishing to do so. Commenced potting the Strawberry plants layered in small pots, and those, which to save time, were taken at once from the beds and pricked out in rich soil below glass, where they were shaded for ten days, afterwards had air, and then were fully exposed. There is little difference in these plants, only those planted in the bed are a little drawn from being placed thickly together, and could we have got at them ought to have been potted eight days ago. Our sorts are chiefly a few Black Prince for early work, and Keens' Seedling and British Queen, with a few others for variety, but those will be our standards. A number of Keens' will be put in four-inch pots, or what are called 48's, for the earliest work. The bulk will go in 32's, or six-inch pots. A good proportion of them will be one plant to a pot; but some of the weaker ones we will put two plants in a pot. At one time I was all for one plant in a pot, but considerable experience has left me more in doubt; and last season, though all the plants did remarkably well, I rather think that the pots with two plants in each brought rather the heaviest late crops. For early work I prefer one plant in a pot even if the pot should be smaller, as much

depends on having the main bud so well elevated as not to be influenced by damp or injudicious watering. This is not so easily done when two plants are put in a pot, as the plants must stand at the sides opposite each other. With a single plant in a pot it can be fixed well up in the centre, something in the way that Heaths used to be potted in our young days. A good fresh loam with a little rotten dung is the best compost to use; but far more than any sort of compost or manure is the mode of potting. Loose potting will never give a good crop. If the man's fingers are not strong enough to squeeze the soil tightly, let him use a piece of wood and ram the soil tight in the pots, keeping the collar of the plant above the rim of the pot. I am no advocate for larger pots, unless two-year-old plants are used, as they do in many places in the north. In such cases the yield is generally good, but the individual fruits are not generally so fine. I consider the end of July better than the first and second week of August for potting; but I have sometimes been disappointed in very strong plants from early potting. Plants with well-ripened buds and pots not only crammed firm with soil but one mass of healthy roots, are of more importance than very strong plants if these are not equally well ripened. In very early potting the main bud is also apt to split into two or three, and the produce, therefore, is not generally so good as respects quality, as when the plant has only one strong central bud. For myself I should have liked to have potted the runners eight or ten days earlier, and, therefore, I must hasten the perfecting and maturing the plants, by giving them less pots to grow in, the best and sunniest position, the richest nourishment until the end of September, and every chance of ripening the buds by comparative dryness afterwards. In my opinion there are just two secrets for securing early Strawberries under ordinary management. The first is firm potting; the second is ripening of the plant. To secure the last the pots must not be too large, as that gives an impetus to the growing and retards the maturing process: hence, I have seen more fruit gathered from a dozen plants in 48-pots, than from a similar number of 24-pots.

PLANT-HOUSES.

At the bottom of the page 385, the word "*Calceolarias*," ought to have been "*Cladiums*." I daresay in these busy times some of us are a sad pest to the printers. Much the same work was continued in the plant-houses, potting, top dressing, re-arranging, regulating climbers, and keeping all neat being the order of the day. Lantanas, the varieties of which are very beautiful, though the scent is not enticing, struck in spring, have received their final potting for autumn blooming, and along with *Browallias* and *Cassias*, &c., will relieve the masses of *Fuchsias* and *Balsams*. *Ericas* and *Epacrises* should be put under glass, so that they may be defended from autumn rains, and yet plenty of air given back and front. For this purpose pits built above ground, as alluded to the other week, are better than sunk pits, as air may be admitted by openings level with the floor of the pit, as well as by tilting the sashes over the tops of the plants. Where pits are not so constructed, garden frames are more suitable for all such plants that are at once dwarf and compact enough to go beneath them. The frame may be elevated a brick or two at the corners, and then, with the sashes also elevated back and front, there is a thorough circulation of air: and the glass, by keeping off rains and heavy dews, and yet allowing heat and light to penetrate freely, secures the ripening of the wood and the setting of the buds. Were it not for want of room, want of conveniences, and the desire for novelty and change in little space, *Camellias*, *Azaleas*, and many other things now summered out of doors, would be better by glass protection at all times.

GERANIUMS.

The finest masses of Scarlet Geraniums out of doors, at least in quantities, I ever saw, were some four or five years ago at the Crystal Palace, in the vases along the terraces. The massive masonry work, and the vases themselves, as well as the huge building, were so light, that no colour would have told like the scarlet. A slight fringe of blue drapery round the scarlet might have softened the whole; but I may be in error. One thing ought to be stated, that owing to the reflection of the sun's rays from all such light-coloured substances, it is difficult to induce small trailing plants to come over the edges of such vases. Be this as it may, the whole accompaniments marked out scarlet as the colour for those vases.

The very finest mass of scarlets I ever saw—finer than even in

the vases at the Crystal Palace—were in beds beneath the glass-covered portico of a small country mansion. The back of the portico, where not covered by plants, was a dark green; the narrow wired pilasters that seemed to support the front of the roof, there being an iron column behind them, were also dark green; the curb that bounded the beds was, or was made, to look like red sandstone, and a narrow walk surrounding it of bright red gravel. Now, looking at the Geraniums from a little distance the effect was magnificent—the green gave repose to the eye. When you entered the verandah and looked down on the mass of scarlet, it was no less dazzling; but the charm was gone. The eye was rather dazzled than delighted. The red glare of the heated gravel left no soft spot of repose or of contrast for the eye to rest upon, and the flowers were so dense as to show but little of their own green foliage. A stone-coloured wall, and especially a floor of light stone instead of red gravel, would have left the Geraniums as much at home as the vases at Sydenham. A strip of white Nosegay (*Hendersonii*) round the scarlet, or a band of white Ivy-leaved Geranium, or a mixture of white and blue, such as Variegated Alyssum and blue Lobelia, would have given repose to the eye and made the scarlet all the more dazzling and beautiful.

On the same principle, single, or even a pair of beds, if entirely of one colour, however attractive the colour may be, will seldom be satisfactory, unless the grass or other surroundings are peculiarly fitted to mellow down that colour. For want of contrast and repose many single beds, otherwise gay, cease to be attractive and pleasing, though the reason why they are so is often never suspected. Whether shaded or contrasted, two colours under such circumstances will generally be more telling than one.

If the present hot weather continues, however, we shall have no need of glass-covered ground to have Scarlet Geraniums in fine condition. They are now fast coming up to the mark, though not yet so fine as in some seasons. A little disleafing has enabled the sun to exert more power. Unless in the case of the tenderer variegated kinds, Scarlets fairly established out of doors hardly ever require the assistance of the watering-pot; *Golden Chain*, *Alma*, &c., though delighting in the sunshine, are not so patient of drought, and will need watering; Ivy-leaved kinds, as respects moisture, need intermediate treatment. Removed some of the larger leaves of these, and stopped the points to encourage free blooming. The terminal bud of the strong Scarlets may also now be nipped out, as it will take all the season to mature the buds now showing. The decayed petals should also be nipped out of large trusses where there are many blooms to open; this, if possible, should be done always before wet is expected. The faded petals not only are disfiguring, but they discolour the sound petals remaining, and make them dirty and miserable.

The weather that has proved so suitable to Geraniums has been trying to *Calceolarias*, however dense the ground be covered. We have been obliged first to water individual plants, and then to water them as we could generally. Every means will be taken compatible with neatness to keep the moisture in, though there are signs we shall soon have moisture from the heavens, and perhaps more than the husbandman may want for the harvest. *Nasturtiums*, as *Tom Thumb* and other favourite kinds, have wanted much leaf-picking to make them a mass of bloom this season; but this is required in most seasons where masses of bloom are more desired than foliage. There is so much succulence in the shoots, that, without interfering at all with them, the flowers will be benefited rather than otherwise by removing three parts of the foliage, just leaving enough to prevent a bald appearance.

Tied and regulated Hollyhocks, Dahlias, &c., and just commenced the propagating of bedding plants by inserting cuttings of climbing plants—as *Maurandias*, *Lophospermums*, *Cobæas*, using short side shoots of the latter, and small side pieces or points of *Tropæolum elegans*, which has also required much disleafing in our heavy ground this season. Will follow leisurely with *Verbenas*, *Geraniums*, &c., leaving the *Calceolarias* generally until October. The plants of the florist *Pelargoniums* will soon be pruned; they are not too hard as yet. Nothing is gained by pruning them back whilst in a soft immature condition. If a shower comes now, we shall place them all on their sides, to prevent the soil being wetted. The more the shoots resemble a piece of Oak before pruning the better will the plants do ultimately, though they may break more languidly at first. —R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications.

We cannot reply privately to any communication unless under very special circumstances.

MORPHOLOGY IN WHITE CLOVER.—"C. J.," of Bromley, has forwarded me a specimen of common White Clover, in which the sepals of the calyx are of a leafy character, and in which the pod is replaced by a stalked leaf—a reduced copy of the ordinary leaflets of the plant. Such instances are by no means uncommon; but I am not the less glad to receive specimens on that account; and, hence, I must thank you for this renewed act of kindness, and must also beg you to insert my thanks to "C. J.," in *THE JOURNAL OF HORTICULTURE*.—MAXWELL T. MASTERS.

HUNT'S SWEET WILLIAM NOT BLOOMING (L. F. F.)—In the first place recollect that three weeks' growth last summer did not advance the value of one week's growth of ordinary seasons. Sweet Williams are very old-fashioned flowers, which, if they are not treated in the old-fashioned style, will never flower till the second season after being so late in the season of sowing. Next time, and for all time to come, let the Sweet Williams be cultivated on this wise. They "must be sown at the beginning of April in a bed of light earth, and in June they will be fit to transplant out, at which time must be prepared some beds ready for them. They should be planted 6 inches distance every way. In these beds they may remain till Michaelmas, at which time they may be transplanted into the borders of the pleasure garden. These will flower the next year in June, and perfect their seeds in August, which you should save from the best-coloured flowers for a supply." That was written 100 years ago. Compare it with your practice, and you will see clearly where the fault arose.

SELECT FUCHSIAS (F. M.)—Your present collection of Fuchsias is a good one. As you prefer dark well-cupped varieties, we can recommend the following twelve as worthy of being added to your stock. In growing them adopt the pyramidal style, that shows off the beauty of the flowers to the best advantage. The Fuchsia requires a rich light soil, and a liberal treatment with water, and plenty of air during the summer months. In early spring it requires rather more heat and moisture overhead than most other greenhouse plants. If convenient, procure good plants as soon as you can, and commence preparing them for specimens early in the spring. *Big Ben* (Rollisson), gigantic flower; scarlet tube and petals; corolla large, deep purple shaded with blue. *Conqueror* (Rollisson), large blue corolla; bright crimson sepals; a large and very fine variety. *Count Caroux* (Banks), mauve corolla; crimson sepals; fine habit. *Criterion* (Smith), tube and sepals very stout, coral red colour; corolla violet purple; a fine kind. *Elegantissima* (Smith), tube and sepals rich scarlet crimson; sepals broad and reflexing gracefully; corolla violet purple. *Forget-me-not* (Banks), corolla rich blue striped with crimson; sepals broad, bright carmine, and well reflexed. *Lord Macaulay* (Banks), large broad sepals of great length, and reflexes well; corolla deep violet. *Black Prince* (Banks), sepals dark carmine, broad and spreading; corolla intensely dark, almost black. *Pioneer* (G. Smith), tube and sepals crimson; corolla very large, and of a light purple colour. *Prince Leopold* (Banks), flowers large, with stout red sepals; corolla purple, expanding cup-like, $\frac{1}{2}$ inch across. *Schiller* (Banks), a long, drooping, elegant flower; sepals white; corolla rich deep purple, with a pure white blotch at the base of each petal. *Star of the Night* (Banks), a noble flower; sepals broad and recurved, glossy carmine colour; corolla $\frac{1}{4}$ inch across, of a fine violet purple, finely cupped, the interior rayed with scarlet.

OBTAINING CUCUMBERS IN JANUARY (W. S.)—In a house heated by hot water, we would sow in the first or second week of September, and again towards the end of the month, but principally in the first week. We would sow in August for plants to bear in November, December, and onwards; but to commence bearing in January and onwards, the beginning of September will be soon enough, and then the plants should be encouraged to get strength until the first or second week in December. All fruit which shows before that time had better be removed, and the strength of the plants husbanded to bear onwards from January. Plants that bear all through November and December, are apt to get weak and exhausted about the new year, if the winter previously had been at all dark. If seeds are sown, say at the end of October, and November and December should be very dark, the plants will not be so well established and strong as those sown earlier, and which have had the advantage of an autumn sun.

UMBRELLA TRAINING OF ROSES (A. F. B.)—Roses are not naturally weeping trees, like the Weeping Willow, Ash, Elm, &c.: hence, when the shoots are tied down in a weeping position, the ends of the shoots will turn upwards. You can only follow the method you have adopted—that is, keep the shoots tied down as they elongate. When you prune them in the autumn, leave the shoots nearly their full length, and next year you will have a weeping tree.

GLEBE LAND (A Subscriber)—Only under peculiar circumstances could forty acres be rendered as remunerative as by letting them to a substantial tenant at £2 per acre. If you persist in cultivating them, and grow farm produce, we recommend you to follow the suggestions of Mr. Robson, in his "How to Farm Two Acres Profitably." You need only proportionately increase the size of the plots devoted to the crop particularised. If you choose to combine market gardening with your farming, consult what is said by "A Little Market-Gardener;" but such works can only offer suggestions; situation, soil, and local circumstances are all influential, and these must be allowed for by your own common sense. There is nothing peculiarly suited to glebe land; nor is one crop more than another adapted to a clerical cultivator.

COLTSFOOT (An Old Subscriber)—It is a very difficult weed to destroy. Continually cutting it down and draining the soil are the only modes of destroying it known. Draining alone often vanquishes it in wet soils.

PEAT (A. D.)—The sample sent is only fit for fuel. Peat or heath soil for potting is chiefly composed of sharp siliceous sand and root fibres.

SEEDLING APPLE (Garaway & Co.)—Your seedling Apple is a first-rate one, and will be very valuable on account of its fine appearance and great earliness. Why, it is over-ripe now (August 16.)

DESTROYING EARTH WORMS (F. M. Lusk)—There is no better destructive agent for earth worms than lime water. Procure some fresh-burnt unslacked lime, in sufficient quantity to make lime water enough to water all your ground that is troubled with worms. Put the lime amongst water in a large tub, let it effervesce, and when settled and clear, skim off the white scum on the surface, and then dip in a watering-can without disturbing the lime at the bottom; or, which is better, make a hole just above the lime, and put in a tap and draw off the water. Apply it over the ground with a fine-rosed watering-pot pretty liberally. The best time is either late in the evening, or very early in the morning. Should one application not kill them all, repeat it the second day after, and very few, if any, will be left alive. You must not mind interrupting, as you term it, the proper work of the worm in draining and ventilating the ground. Adopt other means for this, such as frequent stirring the surface, and draining.

AMERICAN BLIGHT.—With reference to the remarks of "COMMON SENSE," in the Number of the 6th inst., viz., "I expect the Larches might be cured in Mr. Godsall's nursery, by using a hard scrubbing-brush." What! Upon the young and tender branches and foliage where the American blight so obstinately abounds, employ a hard scrubbing-brush? Why, "COMMON SENSE" might just as sensibly recommend a hard scrubbing-brush as a cure for the lamentable American blight now bidding fair to depopulate a portion of that beautiful country. As to the trunks and larger branches of the Larches, these are kept quite free from the pest.—WM. GODSALL, Hereford.

WHITE LILIES—FUCHSIAS—SWEET-SCENTED VERBENA—PHLOXES (M. F.)—To do full justice to the old White Lily, the bulbs should be taken up every year at the end or during the last week of August; the offsets to be taken from them, and the best bulbs planted the same day in the same or some other place, and in the same or in a different soil—for it matters nothing whether the soil is rich or poor, dry or wet, fresh or worn out, the White Lily is sure to do well in it and bloom most abundantly, if it is yearly divested of its very numerous and exhausting family of little bulbs. But the White Lily being an old-fashioned flower, no one does it justice, but leave it for years to chance, or till the young begin to turn their parents out of house and home. Do you happen to know where to find the old White Lily with the purple stripes, as in Mr. Ferguson of Stowe's striped Petunia? Mr. Beaton wants a root or two of it by the end of this month or very early in September, as all the tribe of Lilies begin to make fresh roots early in September, after which time it is out of date to remove any of them that is thought much of. The proper time to propagate Fuchsias by cuttings is early in the spring and late in the autumn, if one has the convenience to keep the young things in good steady growth all through the winter. The autumn-struck cuttings make the best plants for competition next year. The spring is the only time to strike the sweet-scented Verbena plant; and the autumn, or from now to Michaelmas, is a very good time for cuttings of Phloxes in the open air under a hand-light.

FRENCH MARIGOLD AND SOME OTHER SEEDS (H. Garden)—There never was a double Marigold, nor a double Aster either, nor yet a double Dahlia. The heads of all these are full of florets, but not a single floret was ever double and never will be. The flowers are only full, not doubled; and, of course, every floret will seed just as well as if it was on a stalk of its own—that is to say, if the kind is at all a seeder. The more full the flower is, the more likely the seeds from it are to produce very full-flowering seedlings. Half-double Balsams never ought to be propagated from. You must prevent such flowers seeding, and procure a better strain. Seeds from half-double Chrysanthemums are not worth sowing.

PEAT SOIL (J. A. P.)—Neither of the samples are peat or heath soil. They are merely light loams with root fibres pervading them. Mixed with leaf-mould and flinty sand as you propose, it would, probably, be good for Rhododendrons.

CHISWICK GARDENS (S. A. S.)—None but Fellows of the Society, or friends of Fellows accompanying them are admitted. No payment for admission is taken.

MARSH'S DESERT ABRANGEMPT (Norwich)—The cost must depend upon the material, silver or plated. We do not know the price, a silversmith could give an approximate guess. Full particulars ought to be advertised.

NAMES OF LOBELIAS (C. B.)—They cannot be decidedly named without better specimens, showing the lower leaves. No. 1, is probably Lobelia erinus; and Nos. 2 and 3, different forms of the common L. bicolor, usually misnamed gracilis.

NAMES OF PLANTS (G. S. E.)—The white downy leaf is that of Populus alba; the other fragment apparently belongs to some of the Gleditschias. For a quick-growing green, which seems your particular object, you cannot do better than plant some of the broad-leaved Poplars, as P. balsamifera or P. nigra—the latter a very rapid grower. The Lime is, perhaps, more elegant tree; or there are the Sycamore, and the Hornbeam, if preferred. If your space is limited, any of these would bear trimming up to a convenient size and form. Among evergreen trees, the most likely to answer the above purpose would, perhaps, be the common Spruce Fir.—(H. Fiebler).—What you now send is the purple-topped Clary, Salvia horminum. What was sent before? (P. M. K.).—It appears to be the Tritoma Burchellii of many gardens, which is, perhaps, the original form of T. uvaria; but your flowers are poor in colour (unless, indeed, it has all been discharged in the transit) and may be T. media. The best of the Tritomas is the glaucous-leaved sort, now sometimes distinguished as T. uvaria glaucescens. (R. A.).—Yours is Eucomis punctata.

FLOWER SHOWS FOR 1861.

AUGUST 20th. SHEPTON MALLET. Hon. Sec., Mr. J. Brabner, Shepton Mallet.

AUGUST 28th. DEWSBURY. Sec., Edward Forth.

SEPTEMBER 2nd. HECKMONDWIKE. (Floral, Horticultural, and Agricultural.) Sec., G. Kelley, Heckmondwike.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.

SEPTEMBER 5th. WORKSOP. (Floral and Horticultural.) *Hon. Sec.*, Mr. Geo. Baxter.
 SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.
 SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. *Sec.*, E. CARPENTER.
 NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.
 NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. *Sec.*, W. T. Howe.
 NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) *Sec.*, W. Houghton.
 N.B.—*Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.*

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY, &c., SHOWS.

AUGUST 21st. COTTINGHAM. *Sec.*, Joseph Brittain. Entries close August 14th.
 AUGUST 26th, 27th, 28th, and 29th. CRYSTAL PALACE SUMMER SHOW. *Sec.*, Mr. W. Houghton. Entries close July 27th.
 SEPTEMBER 3rd. POCKLINGTON (Yorkshire.) *Sec.*, Mr. Thomas Grant. Entries close August 26th.
 SEPTEMBER 5th. CHESHIRE. *Hon. Sec.*, Mr. George Chivas, Chester. Entries close August 20th.
 SEPTEMBER 11th and 12th. MANCHESTER AND LIVERPOOL. *Sec.*, Mr. T. B. Ryder, 2, Elliott Street, Clayton Square, Liverpool. *Hon. Local Sec.*, Mr. S. H. Hyde. Entries close August 14th.
 SEPTEMBER 20th. STAFFORDSHIRE (WOLVERHAMPTON). *Sec.*, Mr. W. Tomkinson, High Street, Newcastle, Staffordshire. Entries close August 24th.
 SEPTEMBER 24th. BRIDGNORTH. *Sec.*, Mr. R. Taylor, Bridgnorth.
 SEPTEMBER 26th. MIDDLETON. *Sec.*, Mr. Thomas Mills.
 OCTOBER 8th, 9th, and 10th. WORCESTER. *Sec.*, Mr. J. Holland, Chestnut Walk. Entries close September 20th.
 OCTOBER 23rd. CALNE. *Secs.*, Messrs. F. Baily and A. Heath. Entries close September 24th.
 NOVEMBER 22nd, 28th, and 29th. DARLINGTON. *Sec.*, Mr. J. Hodgson. Entries close November 11th.
 DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. *Sec.*, Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.
 DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. *Sec.*, Mr. W. Houghton.

MORTALITY AMONG THE POULTRY AT THE SHEFFIELD EXHIBITION.

It is too notorious in racing circles that there are a set of villains who do not scruple to "physic" a horse against whose success they are betting. They do not wish to deprive the animal of life, but only so much to weaken him that he is "safe" to lose. Sometimes, however, in their anxiety to make such animal "safe," they have administered a dose too strong, and the animal has died. Many of our readers will remember the case of the Eagle Colt. One Daniel Dawson administered the too-potent dose, and the said Daniel Dawson was hanged for so doing.

The days when men were deprived of life for such a crime are passed; but not one of our readers but will agree with us, that the man who will administer poison to an animal to prevent its winning in any contest, is but one step removed in moral blackness from Palmer who poisoned discursively those by whose deaths he hoped to defraud insurance offices. It matters not whether a horse or a chicken is poisoned for such a purpose. The villainy is the same, the deed is detestable.

If, then, the mortality among the poultry at the late Sheffield Exhibition was occasioned by poison purposely administered to the birds, then whoever administered that poison is one of the most base of mankind. How a previous generation estimated such a crime, the fate of Daniel Dawson records; and though we are thankful that the period of death-statutes is gone by, yet there is no secondary punishment so severe that we would not have it inflicted on such a culprit.

We ask, then, Were the deaths of the poultry at the late Sheffield Exhibition occasioned by poison? Can any one give us information on the point? If sufficient evidence can be afforded—be the criminal who he may—we pledge ourselves that he shall be arraigned for the deed.

An anonymous writer under the signature of "SELM," weeks before the Sheffield Show, published some ambiguous warnings to poultry exhibitors. Who is "SELM," and on what grounds did he consider himself justified in publishing such warnings? Can he afford any evidence?

How did it happen that about ten or twelve pens had one bird in each more or less unwell? How did it happen that one bird was dead or dying in the following?—

Pen 44.—Grey Dorkings (cock dead). They were Mr. Berwick's, of Helmsley.

Pen 251.—Golden-pencilled Hamburgs (cock very ill). They belonged to Mr. George Pallett, of Burgoyne Baths, Walkley, Sheffield.

Pen 262.—Golden-spangled Hamburgs (hen miserably ill). The property of Mr. Henry Carter, of Upper Thong, Holmfirth.

Pen 387.—Buenos Ayrean Ducks (drake dead). Owner, Mr. G. S. Sainsbury, Rowde, Devizes.

One pill could only be eaten by one bird, and it was only necessary to destroy one bird in a pen to disqualify that pen. The mortality was not occasioned by the weather. It was then and had been previously cool and pleasant, nor was there any approach to cold winds. It had rained a little the night before the awards were made, but the pens (except about two or three), were perfectly dry and comfortable, being well protected from vicissitudes of chance storms. Moreover, the two or three wetted pens did not contain a single specimen of the ailing birds.

There was a Dog Show held simultaneously, but it was removed so far from the poultry that it was impossible altogether for fright at the dogs to have done the injury. Indeed, the fowls were all penned before any dog arrived on the ground. From heat or excitement therefore, both most probable to bring on apoplexy, the deaths did not arise.

Then, again, let it be remarked that the deaths were almost exclusively in pens of first-rate birds—pens that but for the one death in each would have been very likely to be winners.

Under these suspicious circumstances, and considering that such remarkable mortalities—the one necessary and no more—occurring at exhibitions must be fatal to poultry shows, we have given the subject this prominent notice, and we will conclude by again asking emphatically—Can any one give evidence that the deaths among the poultry at the Sheffield Exhibition were occasioned by poison purposely administered to them?

REMINISCENCES OF A GAMEKEEPER.

(Continued from page 388.)

BUT all the roads in these commons are not green rides: there are the tracks made by wagons when drawing turf. Lest any should be ignorant of turf, poor people living, perhaps, in the Vale of Aylesbury or the fat parts of Lincolnshire, and knowing nothing of heath, we will tell them, these commons furnish the fuel of the poor. Certain men live by cutting turf, for a trifle per thousand; it is then exposed to the sun till dry; then heaped together in cocks; then carted home and stacked in the turf-house till the winter. In this country all the farmers draw for the cottagers, and are paid for the labour by the ashes, which are used for manure. The instrument used in cutting it is a very stout steel spade, about 15 inches wide at the shoulders where the handle is inserted; these are rounded off, and it then takes the form of a tongue ending in a point. The handle is about 30 inches long, and terminates in a broad cross-piece rounded at each end to form handles, but flattened in the middle to enable the man to press against it without hurting himself. Choosing a spot where the heath is not only long and thick but stout, he puts the point of his cutter in the ground, then taking hold of each end of the handle he presses against it with all his strength, and cuts a turf or sod about 18 inches across every way, and about an inch thick. It is turned earth uppermost, to become dry by exposure to the sun and air. The earth itself is peat, and being filled with the roots of the heath, it becomes very inflammable.

Reader, if you have ever been wet and cold in a heath country in November, and have sought a place where you could sit down in the dry to eat what your store afforded, and mayhap to amoke just one pipe, and if you have come across a turf fire you know the luxury; if you have not, I will attempt to describe it.

"Well, dame, I have just dropped in for five minutes."

"Lor' a' massy, Mr. John, but I'm glad to see ye. If I'd knowed ye were coming I'd a' had a better fire; but there, a matter o' turf will soon burn up."

The grey ashes lie in heaps on the hearth, and the genial emanation from them tells there is more than dust there. The good woman of the house chooses three or four turfs well covered with heath; she then rakes the ashes away from the back of the fireplace; she places the thickest and heaviest turf there, the others in front of it; she rakes the braize up against the outermost, and gives one blow. In an instant the fire invades the whole, and then the flames roar and spit, and the good turf crackles, and chairs or settles are moved, for the heat increases;

the closely-buttoned coat is opened, and the turf fire justifies the character given of it by its friends, that none burns up so rapidly or communicates so much heat. It is by no means transient: long after the flame has disappeared there are lumps of fire changing from white to yellow and pale red, as the outer flakes fall off; and as they seem to lie and swell and enjoy the heat, they partly realise the idea of the Salamander. But if you are far from home, or if there is yet work to be done for which daylight is wanted, it is dangerous to encourage this mood. Often have I indulged these reveries till I imagined all sorts of things in the fire, and enjoyed the amusement till my dreams ceased to be waking ones, and when I returned to reality it was a long walk over a dreary common.

The question of commons is a vexed one; while the right of turning out will always be valuable to the farmer, and the right of fuel be still more so to the poor man, yet they always harbour many bad characters, and give a plea for idleness. Fuel in such a neighbourhood as I am describing is the only thing in which the poor man can indulge without the necessity of stint. The little bit of coal bought with difficulty, with just enough burning to fill a very small screwed-up grate, and constantly going out, will never bear comparison with the cheerful hearth. The tired, wet man, who comes soaked from his labour, puts on the three or four rods of turf, and is driven back in ten minutes by the unbearable heat which is felt by all around him, will never benefit by the little bit of dusty coal that is hidden from everybody's sight, and withdrawn from their feeling when he spreads his broad palms in front of it. I believe if you were to poll labourers they would sooner have tea and a roaring turf fire than a moderate meat meal in comparative cold. Who that has travelled through the country at night has not observed the air of comfort and cheerfulness given by the leaping and quivering reflection of the fires within the cottages, the only piece of indulgence they dare to allow themselves?

A large extent of waste land, however, tends to create a vagabond population, and especially leads to sabbath-breaking. I will endeavour to sketch two characters with whom I was frequently in contact. Both were poachers, but were widely different in their habits and manners. Ned Bond was a stout, well-built man, rather above the middle height. Nature had made him a sportsman, but he had not the energy to persevere in an industrious course till he could afford to indulge his inclination; nor did it suit his nature to seek to make them the means of his livelihood by hiring himself to those who could afford to keep such men in furtherance of their own hobbies. He would not go as keeper, or if he did he would not remain; his notions of enjoyment led to the unlimited consumption of beer when it came in the way, and then, as a natural consequence, he became far too important to serve any one. He never worked till he was too old to do anything, and then he pretended to do day labour. He would hire himself to any party to accompany them shooting; he would undertake to break dogs—in fact, anything that was like sporting, and unlike work. When these failed he would poach; but this was, perhaps, the most respectable thing he did. He did not sneak about in dirt, but dressed well; with white hat, clean white neckcloth, clean shoes and gaiters, clean gun, and dog in good condition, he sallied out in pursuit of Pewits and Golden Plovers. His besetting sin was he seldom told the truth.

Jack Tomline was a slim, dirty, old man. His face resembled a skull with skin stretched over it; his teeth were all gone, and his lips sunk into his jaws. He was miserably thin, and wretchedly clothed. Old worn-out corduroy trousers, and boots that had long seen their best days covered his legs and feet; the rest of his costume was concealed by a dirty smock-frock, and the whole was covered by a loose drab great coat that had at some time formed part of a livery outfit. He was never known to use a gun. He hunted with five dogs, and it was interesting to see how admirably they were trained. However they might be excited, no whimper would be heard. I have often seen Tomline and his dogs beating a gravel-pit overgrown with heath and furze, and a favourite resort for hares. I have been watching him, and have seen him walk along at a moderate pace looking neither to the right nor the left, his dogs following, and all apparently wrapped in deep thought. I have taken my eye off him for a minute and he was no longer in sight; but now and then a dog would be seen to jump over a furze-bush or up a bank. He would be seated, or squatted, or stooping. Two or three dogs would make a rush at one spot, Tomline tell upon them, and when he got up there was nothing seen, except, there were

two or three spots of blood on his frock, and it stuck out more on one side than the other. This would be many times repeated. He always worked on the boundary of a manor, and always in covert. If it were necessary from the approach of any one that he should cross a boundary, he would drop on his hands and knees, his dogs would crouch and crawl behind him, and when he was next seen it was at some distance beyond the limit.

(To be continued.)

PROFITABLE POULTRY KEEPING.

ONCE more I must beg space in *The Poultry Chronicle*, and ask the indulgence of its readers. My critic "E. C. C." still demurs to my statements, and I apprehend the best possible reply I can give will be a full year's accounts. To have copied the entries of each day would have encroached on too much space; I have, therefore, given the first and last of each month with the totals. From September the account is carried on to the following January. This arose from there being comparatively few purchasers and sales from the middle of August to the middle of October. My garden produce now chiefly fed my stock birds, and until October I had very few eggs to dispose of. My gardens were some few rods only short of an acre in extent, were well cropped, and everything was done to make them productive. My family consisted of six individuals only, and three were children under five years of age; hence, I could not but have an abundant supply of food for my poultry during the whole year, with the expenditure for grain and greaves given below. That they were neither "skinny" nor starved, the returns for eggs from October to January fully prove. With these few remarks I ask a perusal of the following account (of which I have given a candid interpretation in the form of an analysis), premising that it is that of my first year, and calling attention to the fact that I had no chickens for sale until June; and the results of this my initiatory year of keeping poultry for profit only, are but little below those of the average of three years on which my already published accounts were based.

1857. DR. PAYMENTS. £ s. d.	1857. CR. RECEIPTS. £ s. d.
Jan. 28.—To food purchased 0 16 8	Feb. 1 to 28.—By eggs sold. 2 1 3
Feb. 3 to 25. do. 2 14 7	Mar. 1 to 29. do. 11 4 2
Mar. 2 to 24. do. 4 9 2	Apr. 2 to 19. do. 5 15 10
Apr. 8 to 20. do. 3 18 4	May 3 to 31. do. 3 15 10
May 9 to 29. do. 6 1 8	June 2 to 29. chickens do. 12 1 3
June 9 to 30. do. 10 1 8	July 1 to 30. do. 19 2 6
July 4 to 30. do. 8 0 0	Aug. 4 to 24. do. 24 16 8
Aug. 8. do. 4 6 8	Sept. 1 to 1. eggs 19 15 0
Sept. 1 to 1. do. 3 19 5	Jan. 30, 1858.}
Jan. 31, 1858.}	
	44 8 2
Gross Profit . . .	54 4 4
	98 12 6

ANALYSIS.

Total eggs, 10,225, of which 545 were sold at an average of 1d. each . . . 22 17 1	Total Chickens, 780, which brought an average price of 1s. 5d. (and a fraction) per head . . . 56 0 5
3792 fetched an average price of 1½d. each, and 948 were used for sitting 19 15 0	
42 12 1	98 12 6

This gives an average of 102½ eggs to each hen, of which an average of sixty-four were laid before sitting, and thirty-eight during the autumn and winter months.

Average chickens to each hen 7 4-5ths. Seventy-eight of my own hens sat (including a few which sat twice), and twelve sitting hens were lent to me by a neighbour = 90, giving an average of 8½ to each.

Average return per head	s. d.	throwing off minute fractions.
" cost " "	19 8½	" "
Gross profit per head	10 10	" "

Against the gross profit balance of £54 4s. 4d., the deductions for interest, loss, eggs for sitting, rent, and management will have to be placed. I hold, however, that where the care of poultry devolves on members of the owner's family, without hindrance to any other pursuit, and where the rent of premises must be paid, whether occupied by poultry or not, the two charges for management and rent may legitimately be claimed as profit, or rather not made a charge at all.

Again, I repeat, that two acres of grass land, nearly one acre

of garden, and over a quarter of an acre of a sand and gravel yard (containing dung, straw, wood, &c.), is amply sufficient for the health, keeping of 100 head of poultry, with the purchases above named.

"Let him laugh who wins," is an old proverb. And whether the above statement be satisfactory or not to "E. C. C.," I can affirm that the profits of poultry keeping were eminently so to me for a period of fourteen years, and not merely the four which were conducted solely with a view to sale, but during the preceding ten, when I could get, in the locality in which I then resided, only 1s. a score for eggs in the height of the season, and 3s. a couple for fat fowls. I had my own consumption of poultry and eggs, and a present to a friend now and then, free of all cost.

In my last an error occurred, either mine in transcribing, or the printer's. The amount for purchase of stock should have stood £14 15s. 6d., instead of £13 15s. 6d. This correction will give, as I stated, "interest, 14s. 9½d.;" and "price or cost per head, 2s. 11½d. nearly;" fractionally, 2s. 11¼d., 21-25.

With this profit to be obtained by the dealer I had nothing to do. I obtained my own price, and in corroboration of my statements I would refer the reader to the series of papers which recently appeared in *The Poultry Chronicle*, and also to the quotations in the weekly lists.

Again, I consider myself justified by usage in charging the eggs placed under the hens at a price lower than that at which they would be sold. If a producer uses or consumes any of his productions, he does not debit himself with the profit he could have obtained by sale, but with the cost to himself.

Indisposition has prevented this reply appearing earlier. If deemed satisfactory by "E. C. C.," well; if not, I have neither the means nor the inclination to continue the controversy. And I say, though in all respect, that as the whole of my statements are "founded on facts," I am careless of the result.—LEIGHTON.

[We think this controversy may now cease. Our correspondent "LEIGHTON," whom we have long known, says he is only stating "facts."—Eds. J. or H.]

PRECOCIOUS DORKING PULLET.

I HAVE a white Dorking pullet which was hatched on the 12th of last March, and she laid on the 27th of July. Do you often hear of pullets laying so young?—J. D. B.

[We do not often hear of pullets laying so young except they are Cochins. They will lay at seventeen or eighteen weeks old, if they reach that age, in summer or autumn. Your pullet would be nineteen weeks and four days old. It is an unusual occurrence, and the only explanation to be given is, she lived and grew in the time of year most favourable to development. She would not have laid if she had attained that age in the winter.]

POULTRY AFFECTED WITH ROUP.

You will greatly oblige *A Subscriber*, if you can inform me what to do with my chickens. They are Grey Dorkings. Several of them, in two coops, about six weeks old, have been simultaneously attacked with swelled heads and eyes; in some, only one eye; in others, both. None of those that became wholly blind have recovered their sight, but died in a few days; most of the others are getting well, though their eyes are very weak. Their feathers look well, and, for the most part they eat well, and run about as usual. The coops are placed several yards apart on a large piece of short grass, of which the chickens have the run; and the ground is not overstocked with fowls. I have given the afflicted ones "Barly's roup and condition pills," and washed their heads once or twice a-day in weak vinegar and water, when a film, in some cases as thick as the white of an egg, came off the eye.

I fear the disease is infectious, as a large cockerel of more than two months old has also lately been attacked, and I think will not live. Can you suggest any remedy for this disease?

[We advise you to remove the infected from the healthy chickens. Feed both freely on bread and ale, and let some of the earth close to their ribs be turned up and over, with spade or fork, every night and morning. Your treatment of the sick chickens is right—continue washing with cold water and vinegar. Where young chickens have both eyes closed, kill them at once.]

DORKINGS PRODUCING YELLOW-LEGGED CHICKENS.

In the beginning of March last I was presented with what was called a very fine Dorking hen (coloured), for which I purchased a cock shortly afterwards. From the present pair I have now twenty-one chickens, of which fourteen are cockerels, and seven pullets. I have read that coloured Dorkings should have white legs, and it strangely happens that my pullets have all yellow legs, with only one exception, while the cockerels are, according to rule, provided with white ones. The question I want to put to you is, Should I think less of my pullets because they have yellow legs, if they are good birds otherwise?—NOVICE.

[Under no circumstances can we advise you to breed again from birds that have thrown yellow legs. They may be tolerable if you intend to eat them all; but even then they are ugly on the table. You cannot show them to a friend as Dorkings, and neither alive nor dead can you sell them for such. View them in what light you will, yellow legs are a great disadvantage, and diminish value greatly.]

GOOLE POULTRY SHOW.

On the 1st inst., the first exhibition of the Goole Poultry Show was held in the Bonding-yard, belonging to the Aire and Calder Navigation Company, which had been placed at the disposal of the Committee, to whom the management of the Show was entrusted.

SPANISH.—First, E. Brown, Philip's Road, Sheffield. Second, F. Johnson, Hull.
DORKINGS.—First, E. Smith, Middleton. Second, F. Key, Beverley.
COCHIN-CHINA.—First, E. Smith, Middleton. Second, W. Dawson, Hopton.
GAME (Black-breasted and other Reds).—First, R. Tate, Driffield. Second, H. Adams, Beverley.
GAME (Duckwings and other variety).—First, H. Adams, Beverley. Second, J. P. Hepworth, Beardswood Green.
GAME (Any variety).—Prize, J. Fletcher, Stoneclough, Manchester.
HAMBOURG (Golden-spangled).—First, C. Wharton, Rawcliffe. Second, Miss E. B. Iden, Park Cottage, Bradford.
HAMBOURG (Silver-spangled).—First, E. Matton, Pudsey, Leeds. Second, R. Tate, Driffield.
HAMBOURG (Golden-pencilled).—First, F. Hardy, Bradford. Second, T. C. Addy, jun., Epworth.
HAMBOURG (Silver-pencilled).—First, C. Wharton, Rawcliffe. Second, Miss E. Beldon, Bradford.
POLISH FOWLS (any variety).—First, F. Hardy, Bradford. Second, Miss E. Beldon, Bradford.
ANY OTHER PURE OR DISTINCT BREED (Not previously classed).—First, R. Tate, Driffield. Second, Miss E. Beldon, Bradford.
BANTAMS (Game).—First, R. Tate, Driffield. Second, Miss N. G. Crossland, Wakefield.
BANTAMS (any other variety).—First, F. Hardy, Bradford. Second, Miss N. G. Crossland, Wakefield.

SINGLE COCKS.

SPANISH.—Prize, Mr. Moss, Goole.
DORKING.—Prize, J. E. Porter, Goole.
COCHIN-CHINA.—Prize W. Dawson, Hopton.
GAME (Black-breasted and other Reds).—First, H. Adams, Beverley. Second, F. Hardy, Bradford.
GAME (Duckwings and any other variety).—First, J. Fletcher, Goole. Second, F. Hardy, Bradford.
ANY FARMYARD CROSS.—Prize, R. Tate, Driffield.
GAME BANTAM (any variety).—Prize, R. Tate, Driffield.
BANTAM (any variety).—Prize, F. Hardy, Bradford.
TWO HENS (any variety).—First, E. Key, Epworth. Second, G. H. Crossland, Wakefield.
GANDY AND GOOSE.—R. Tate, Driffield.
TURKEYS (cock and hen).—Prize R. Tate, Driffield.
GUISEA FOWLS (cock and hen).—Prize, R. Tate, Driffield.
DUCKS (any variety).—First and second, R. Tate Driffield.
PIGEONS.—*Carriers*.—Prize withheld. *Croppers*.—Second, J. B. Hepworth, Beardswood Green. *Tumblers*.—First, J. W. Bell. Second, R. Gravel, Thorne. *Barb*.—First, T. Ellington, Woodmansey. Second, Miss E. Beldon, Bradford. *Jacobin*.—First, T. Ellington, Woodmansey. Second, T. C. Addy, jun., Epworth. *Trumpeter*.—Prize, F. Key, Beverley. *Owl*.—First, J. W. Bell, Beverley. Second, F. Key, Beverley. *Turbit*.—Prize, F. Key, Pantail. First, T. Ellington. Second, F. Key. *Any other Variety*.—Prize F. Key.
RABBITS.—*Buck*.—First, R. Earnshaw, Rawcliffe. Second, J. Ross, Howden. *Doe*.—First, J. Aspin, Thorne. Second, L. Dickenson, Howden.

Judges for Poultry, J. H. Smith, Esq., Skelton Grange, York; for Pigeons, Mr. E. Robson, the Brewery, Hull.

Of poultry and Pigeons there were 224 pens, which we consider good, especially as the Sheffield Show was so near, and other two exhibitions of the kind in Yorkshire on the same day.

FEEDING BLACK EAST INDIAN DUCKS.

CAN you tell me if these, for exhibition, ought to be fed or treated differently than other Ducks?—SIGMA.

[The essentials in these birds are small size and bright

plumage. They should not, therefore, be either over-fed, or fed on soft food. Feed principally on good heavy oats put in a vessel with water and gravel; and they should not always have food by them. Nothing tends so much to the good condition of Ducks as plenty of gravel.]

INTRODUCING A LIGURIAN QUEEN TO A HIVE OF COMMON BEES.

On Friday, July 19th, at half-past eleven A.M., received from the "DEVONSHIRE BEE-KEEPER" a small box containing a Ligurian queen and a few bees, which arrived in good order. At the queen arrived some seven hours sooner than the letter announcing that her majesty had been sent off, I was not expecting her, and not prepared.

Now, for the means taken to unite her with black bees. In the first place, I may state that I had only one stock, and that was in a very large, common straw dome-shaped hive; the bees of this hive had not swarmed, but appeared to be on the point of doing so, drones having been flying about a fortnight, was very populous, and, probably, had several immature queens coming on. This being the case, I did not think it would be safe to join the new queen to bees in an old hive, in the manner recommended by "A DEVONSHIRE BEE-KEEPER," as there would be a fear that the bees would not take to the Ligurian queen, but would prefer waiting for a young queen of their own raising. Instead, therefore, of driving the old hive, I took it from the stand at a time there appeared to be the most bees abroad, and placed in its stead an empty one. As the old hive was taken completely away, and as there were no other hives near at hand, the bees were compelled, though very reluctantly, to take possession of the empty hive.

On the Friday and Saturday the bees were, in a very excited way, rushing in and out; but by the Monday morning following they seemed to have lost much of their restlessness, and I thought the time had come for the queen to be presented to them. I opened the communication between the box containing her and the bees in the hive. The queen, I may state, had been placed over an opening in the top of the hive, separated from the bees below by some wire gauze, and the bees seemed to unite quite peacefully. Though I had the top of the small box covered with a square of glass, yet on the junction taking place I could not see the queen, though I watched very intently, wishing to see how the black bees would receive her.

About a quarter of an hour after opening the communication there was a gentle hum in the hive, which I took to be indicative of a successful junction, and shortly after a bee entered the hive laden with pollen—another good indication—and the bees continued to carry a little all the day.

But now took place what seems to me as very strange. After the Monday, July 22nd and day of junction, till Wednesday in the week following, July 31st, the bees ceased to carry pollen, though they flew out and appeared to collect some honey; but on the Wednesday, July 31st, the bees again began to carry a little pollen during all the day, and on Thursday, August 1st, rather more freely; and since then in a fair quantity. How can this be accounted for? I was very fearful during this period that the queen had not been received, or that she had died. This made me regret that I had not taken means to view the queen before opening the hole to the hive, to see if she was alive, &c.; but at the time I did not wish to cause any excitement among the bees, but to keep them as quiet as possible whilst uniting, as I recollected reading a few weeks before of the unsuccessful introduction of a Ligurian queen to a hive of bees, the non-success caused, as the "DEVONSHIRE BEE-KEEPER" thought, through the bees having been excited, or made angry by a piece of pitch string, used by the operator to stir the bees up to a more speedy junction.

I can only account for the non-carrying of pollen (supposing the queen to be alive) to the probability that the queen, through her confinement, suffered in health—perhaps because her laying had been suddenly arrested, and that it took nine or ten days to recover herself so as to be able to resume laying.

By the plan adopted I had about as many bees as would make a fair-sized swarm.

The night previous to the junction I gave the bees food to fill themselves upon during the night, with the intent of causing them to unite more readily, as it has been several times stated that bees are more peaceably inclined whilst in a state of repletion.

Though the Ligurian bees sent along with the queen were received quietly in the first place, I am afraid they were afterwards all slaughtered, as none are now to be seen, and several have been found dead on the ground in front of the hive.

August 12.—Since the foregoing the bees have been working, by building combs, carrying pollen and honey just as a natural swarm. So I conclude that all is right.

The "DEVONSHIRE BEE-KEEPER" wished me, when he sent the queen, to report the success or non-success I might have, so I have sent you the foregoing.—A.

ARTIFICIAL SWARMS.

HAVING already described what I consider the best mode of forming artificial swarms, I will now point out the probable cause of failure in the instances mentioned by "A MIDDLESEX BEE-KEEPER," and by "J. E. B."

Both these correspondents attempted the formation of artificial swarms by putting combs containing eggs and brood in empty boxes, which were then placed during the middle of a fine day in positions previously occupied by strong stocks. I consider this method inferior to that described by me last week, by reason of the length of time which must necessarily elapse before a young queen can be raised, become impregnated, and commence laying eggs, to which must be added the period from the commencement of egg-laying until young workers are able to take wing. Under the most favourable circumstances these various causes will produce a delay of two months before the numbers of the daily-diminishing colony can be recruited by an accession of young bees. This delay, be it remembered, occurs also just at the busiest and most important season of the year. Another disadvantage is, that any combs which may be fabricated before a queen is matured, will generally be drone-combs, which must either be removed at some future time, or if suffered to remain will injuriously affect the prosperity of the colony.

In some few instances bees will, under these circumstances, make no attempt to raise a queen, whilst more frequently the attempt when made is unsuccessful. Success is, however, much more probable when the brood-comb is accompanied by the bees which cling to it; and if this was not done I should be inclined to attribute the failures which have been recorded to this cause.

Most apirians are aware that Huber noticed two descriptions of working bees in a hive which he denominated respectively nurses and wax-workers. This division of the workers into two classes has provoked ridicule from some, and incredulity on the part of many. Recent observations, however, go to prove that there really is a division of labour among bees, and that whilst the younger portion of the community devote themselves to the home duties of the hive, their elders are employed in ranging the woods and fields to procure sustenance for the entire colony.

It is, therefore, very probable that a chance medley collection of bees consisting almost entirely of those best fitted for honey gathering might either decline the attempt altogether, or fail in a task which they had become unfitted to accomplish.—A DEVONSHIRE BEE-KEEPER.

WOODBURY BAR-HIVES—UNITING SWARMS.

Would you be so kind as to give a further explanation to Mr. Woodbury's bars, as my man does not understand by the sketch given in No. 17, July 23rd, how he allows the bees to pass above the bars, having had some of Mr. Woodbury's bars made with frames for the comb and slides to fit into each side of the bars? The bars being made out of one thickness of wood, and the slides fitting into each side, there is no way for them to pass at top, unless I was to have some holes drilled through the bars betwixt the slide and the bottom of the bars. My bars are now made on Mr. Woodbury's plan as given in a former Number; but the top of the box has slides with a groove on each side of the bars, so that if you want to take out a bar with comb you have only to draw out the slide on each side. This, I think, is a better plan than those recommended by Mr. Taylor and others.

I have a Ligurian swarm hived into a common straw skep on the 20th ult., when I was absent. As I wish to increase my Ligurians would it do to fix some comb from a box-hive into a Taylor's dividing-hive with Woodbury's bars and frames, and then place the straw skep on to the dividing-box, and towards the end of the season to remove the straw skep entirely, as next

spring I wish to divide this swarm as soon as it is ready for swarming?

A gentleman here showed me a plan of joining bees at any time without fighting, which is to fumigate each hive a little, or rather sufficiently for the smoke to pervade the whole of both hives and bees, and then to put all the bees if possible into the hive you intend them to be in; or, if you cannot do that, to knock them out at the mouth, and they will enter, and if properly done there will be no fighting; but I find it is necessary that each should be fumigated a little. I have joined several—indeed I have taken some from two or three hives, joined them together, and then put them to weak swarms or stocks without any fighting, but it should be done in the evening as late as you can see to do it without a candle. I think you should let this be known, as the deaths from fighting are very great and very few know how to join them without fighting, and most of the books do not tell you. I find the Ligurians worse than the black bees in joining one to the other, but last season I bought a swarm driven out to take the honey (and there was not more than 3 lbs.), took away the black queen and joined it to the Ligurians, and I did not observe the least fighting.—A. W.

[The printer by mistake inverted the woodcut which appeared on the 23rd ult. It was repeated in its natural position the week following, and will we think be found intelligible. As Mr. Woodbury does not use slides, the bees have a free passage between the bars. You will not succeed in forming an artificial swarm by placing your Ligurian swarm on the top of a dividing-hive. We should recommend its remaining in the straw skep in which it has been placed.]

Partial fumigation is a very effectual mode of subduing the combative instinct in bees, and we have frequently effected peaceful unions by its means.]

BOTTLE-FEEDING FOR BEES.

MESSRS. NEIGHBOUR & SONS, of 149, Regent Street, and 127, Holborn, have brought out an excellent feeding-bottle for bees. It is 4 inches in diameter by 6½ inches in height, contains 2½ lbs. of food, and having a sufficiently wide mouth is admirably adapted for copious feeding. Being made of the best flint glass it adds not a little to the interest of the process by enabling the observer to watch the number of busy little tongues industriously applying themselves to the task of appropriating the sweets which are so conveniently offered to them.

Messrs. Neighbour supply these bottles completely fitted with wood block, perforated zinc, and elastic band, at so moderate a price as to place them within the reach of all bee-keepers.

HOW I BECAME AN OXFORDSHIRE BEE-KEEPER.

(Continued from page 188.)

"Now did I not so near my labours' end
Strike sail, and hast'ning to the harbour tend,
My song to flow'ry gardens might extend . . .
Describe we next the nature of the bees."—(Georg. IV.)

BUT before I issue my result of the present swarming season, along with some noticeable peculiarities which have occurred in my practice, I wish to dispose of a few remarks.

Now, as regards giving flour to bees as artificial pollen, I always feared the very result which happened to "J. S.," No. 650, page 359, and have desisted from doing so. In the hive there mentioned, the bees supplied themselves with the flour beyond their needful wants and stored it away, and the result was, the combs "were covered with an excess of mites," and, of course, the population came to grief. I bear in mind how prone undisturbed flour is to breed mites during the summer, and that, when once propagated, how difficult they are to eradicate. For that reason I have not yet brought myself to administer artificial pollen to my bees, and the experience of "J. S." will cause me to be very careful how I ever do so. We unfortunately possess a flour-bin at the present time, which I purchased of a baker—a "conscientious man," who holds forth sometimes; and I often wish that, if he knew it, he had mentioned to me that the bin had some time been neglected and was subject to mites. But be this as it may, I paid him his price and became possessor of the piece of furniture, and the trouble it gives to this day from the frequent scrubblings and airings it has to undergo, is most provoking to think of. One never dare to enter more than a

bushel of flour into it at a time; shoot a sackful, and one-half of the quantity would be doomed to become "mity" ere it could be used: therefore, I also caution bee-keepers to beware of an evil from which their hives are not exempted, and to avoid the necessity of supplying artificial pollen to their bees. In the spring I would advise them to plant box trees, of free growth, near the apiary, as they come into flower very early, and produce quantities of pollen, and the bees are as urgent upon them as they are upon the ivy blossom late in the autumn.

Water.—Here again I am not under the necessity of providing for them this necessary fluid, as we have the lake in Blenheim Park within a stone's throw, from which the bees decidedly prefer to go and drink, rather than from anything I can provide them for the purpose; though I fear, when the "stormy winds do blow," that very many of them meet with a watery grave. But to those lacking "the running stream or standing lake," I have often thought that an old filter placed upon some artificial rock-work, with a constant drip, drip, among ferns and "mosses many oh," might be made to become an appropriate and neat-looking drinking-fountain in the neighbourhood of the hives, and one which our little friends would be sure to appreciate.

I take care to plant a great many crocuses for their early decoration; and then come the wall-fruit blossoms, followed by their standard relatives, which, with front-feeding according to the severity of the weather and their necessities, they make a very good shift till the first grand blossoming arrives to the sycamore trees, which refused to flower with us this season, excepting a tree (a mere apology for doing so) here and there; and my bees for lack of it resolutely made up their minds to swarm, and so far as I can make it out this is their motto:—

"Plenty of sycamore honey, and a fig for swarming;
No sycamore honey, and swarm we will!"

Here after the sycamore come the wild flowers and clovers. This has been a capital season for the white Dutch clover, both for the fields and the highways; from which the bees have procured us honey of a quality to meet the idea of the "Roving Englishman in Turkey," where, he says, "The people are carrying pretty baskets full of white sheeps'-milk cheeses made in the Levant. They are eaten with honey, and form, perhaps, the most exquisite dish in the world."

I have specimens of honey by me which, if my prognostications can be carried out, will be heard of again.

In order to utilise every foot of this small garden—a "poky place after all"—the whole length of the extreme edge of the fruit-border is planted with roots of the silver and common thyme alternately; it is now in full bloom, and on suspicious days when the bees do not venture from home—such as to-day, for instance—when we have experienced stubborn storms every hour or so, they take the opportunity to work it well, as well as the borage, which I cause to occupy a place wherever I can. Last year, the latter especially was most servicable, and I allowed the flower-borders to become a complete jungle with it, and till the frosts came it was daily covered with bees. This year both are at a discount, as well as the mignonette and the asparagus on fine days, when they desert the garden for fields and pastures new. Then they were desperate upon the hives, and they are by no means equally full-flowered this year. A noble tree in the grounds of Woodstock House, adjoining us, which I greatly depend upon, has thrown out scarcely any blossom, so the bees were compelled to go farther a-field for this coveted sweet. By the time this paper is printed the lime blossom will be over, and with it our honey season—at least, so far as the supers are concerned; and then, how I wish for the heather-bloom, and the honey which "A RENTREWSHIRE BEE-KEEPER" speaks but slightly of at page 72, specifying the nectar as dark, and as being only fit for bees, or "sought after principally by the tourists." Well, I take the latter to be worthy of some consideration, in so being as they like it, and pay a good price for it. As a finale for our bee flowers comes the ivy-blossom; most of our surrounding old stone walls are covered with it, and to those observant of the evergreen at that time of year I need hardly say that thereout our bees suck no small advantage.

When I operate upon my bees I take care to have at hand the following instruments, and as to those who may feel inclined to take a hint from me I would say, Keep as few or as many of them by you as you may; but first or last in bee manipulations you will be sure to want them for us, and then not to have them by you will be inconvenient. One becomes nervous, if not ruffled in temper by wanting what one has forgotten; and then the bees will be sure to get nervous, and out of temper too, and all will go wrong. I

mentioned a stout wicker-worked basket-measure and some of its uses at page 186; also I make use of a basket containing a soup plate, and two table-spoons, a bag containing cotton wadding, and a pair of stout scissors; a new goose's wing, a two or three-foot length of very small tough wire, or stout thread, a honey-knife, a clasp-knife, a worn-thin carving-knife and a fork, a pair of cutting-pliers, corks and bungs of sizes, and a few of those small mahogany wedges which they use at Brighton to prevent the windows "chattering."

I am one of those persons whom the bees do not care about stinging, I can go amongst them and do what I require to them with impunity; still, as discretion is the better part of valour at super-taking, cutting out combs from their hives, or other violent operations, I put on a bee-dress made "of green lino, so as to inclose the head, neck, and shoulders like a bag, with sleeves made of green-glazed cambric to tie at the wrists," with thick-knitted worsted gloves to draw over the hands to enable the bees to withdraw their stings, and save themselves in cases of attack from their otherwise inevitable doom; for "In days of yore, when the world was young, a bee that had stored her combs with a bountiful harvest, flew up to heaven to present as a sacrifice an offering of honey. Jupiter was so delighted with the gift, that he promised to give her whatsoever she should ask for. She therefore besought him, saying, 'O glorious Jove! make a master of me, poor bee; give thy servant a sting, that when any one approaches my hive to take the honey I may kill him on the spot.' Jupiter, out of love to man, was angry at her request, and thus answered her:—'Your prayer shall not be granted in the way you wish, but the sting you ask for you shall have, and when any one comes to take away your honey, and you attack him, the wound shall be fatal, not to him but to you, for your life shall go with your sting.'"

Moral.—"He that prays harm for his neighbour begs a curse upon himself."—UPWARDS AND ONWARDS.

(To be continued.)

PLAGUE OF WASPS.

I AM induced to trouble you with a few lines, in consequence of reading in your Journal a communication from a correspondent relating to wasps. Having seen an advertisement in No. 14 from Phillips & Co., of Bishopsgate Street, stating that they kept wasp traps, I was induced to send for a dozen, and I here give you the results, aided by six pickle bottles. I give you the result up to this morning:—

July 31 caught 600 Wasps.	Aug. 7 caught 396 Wasps.
Aug. 1 " 500 "	" 8 " 300 "
" 2 " 340 "	" 9 " 421 "
" 3 " 360 "	" 10 " 417 "
" 4 " 593 "	" 11 " 328 "
" 5 " 408 "	
" 6 " 491 "	4964.—T. G.

[Our correspondent, whose address we have, resides near Teignmouth, in Devonshire.]

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 391.)

4.—THE REED BUNTING (*Emberiza Schœniclus*).

German, Rohrammer.

French, Ortolan de roseaux.

THE Reed Bunting is also known by the names of Reed Sparrow, Black-headed and Ring Bunting, and Black Bonnet. They are generally distributed over England, but are more common in marshes, on the banks of rivers, lakes, and ponds, where they frequent the reeds, sedge, osiers, and willows.

In plumage they are of a rufous brown above with longitudinal black spots on the upper surface; the lower parts are whitish-brown. The head and throat of the male are black; when newly moulted these black feathers have a reddish-brown margin, and the head does not become jet black till winter weather has worn these brown edges off in confinement. Where they are less exposed to the action of the weather the head rarely becomes so jet black as in the wild state; a white stripe passes from the corners of the mouth across the cheeks, where it is broadest, round to the back of the neck, where it is faintest; the back of the neck has also a greyish shade; the tail is dark, the centre feathers being brownish, and the outer ones having much white.

The female is distinguishable from the male by her lighter and

less bright colour, her head instead of being black is brown, with some darker specks and a light yellowish-brown stripe over the eyes. They feed principally on insects like the other Buntings, and also on the seeds of reeds, &c. When pressed by hunger in winter they frequent the stubbles and farmyards, and find a precarious living on hay seeds and corn. The nest is formed of grasses, pieces of reed tops, &c., and lined with fine grass and reed down, and is generally placed on the ground among long grass or rushes at the foot of a bush, or on the side of a bank.

The Rev. J. C. Atkinson says, "The eggs are four or five in number, of a pale reddish-brown colour, streaked and spotted with dark brown or a rich purple shade."

In a cage they are familiar, active birds, very fond of bathing, and very amusing by their grotesque movements and attitudes, particularly when disputing the bath with other birds. The song, if such it can be called, is little better than a scream. Standing erect, and throwing back the head with open mouth, they jerk out, *retch, retch, retch*, which is all the song I ever heard my birds of this species attempt.

Bechstein says, "In the room they are the tamest of all the Buntings, and particularly fond of music, which they will approach without shyness as near as possible, with drooping wings and spread tail, which they often wave, evidently pleased; this (he says) he has noticed not of one only but of many." In confinement they may be fed on canary seed, shelled oats, hard boiled egg, and a few insects.—B. P. BRENT.

(To be continued.)

OUR LETTER BOX.

CROOKED BREASTS IN POULTRY (Kent).—This distortion may be occasioned sometimes by the birds roosting on narrow perches, and when this is the case broad perches are the self-evident remedy; but crooked breasts more frequently arise from constitutional weakness in the birds. They are stimulated too much into rapid growth, and that which ought to be speedily solid have remained too long in a grisly and pliant state; the muscles on one side of the breast are more developed than on the other side, and they soon pull the bone crooked.

COTTON CAKE (S. W.).—This is the residue of cotton seeds after the oil has been pressed from them. There are two kinds—one from whole seed, and the other from decorticated seed. The latter is the best, as there is but little nourishment in the husk of the seed, and Professor Voelcker considers that the husk is actually injurious to animals if they are allowed to eat of it freely, the hard husk being very indigestible. The more yellow the cake the better. One pound of such cake per day would be the most we would give combined, of course, with other food. It certainly enriches the milk, though not quite so nutritive as rape cake. We do not know the price, but you might ascertain from those who deal in rape cake.

WILD CANARIES.—As MM. Humboldt and Bonpland descended from the Peak of Tenetiffe and approached the town of Orotava they met large flocks of Canaries. They were uniformly green, but some had a yellow tinge on their backs. Their note was the same as that of the tame Canary. —(Taylor's Life of A. Von Humboldt.)

CHINCHILLA RABBITS (A Constant Reader).—Chinchilla Silver Grey Rabbits are those most likely to suit you, being very hardy and in good demand. The Himalayas would also suit you. With respect to the value of the above every fancier or dealer has his own prices. I can supply you with pure-bred Chinchillas from 12s to 40s per couple, according to age, perfection in colour, size, &c. With respect to their ears, I think they are greatly influenced by heat, as those I have reared in my Rabbit-house, which is rather warm, have much longer ears than those reared out of doors, although the parents are of the purest breed and themselves short ears. I also find amongst those imported from France many with long ears. The short ears are most liked, but I think size and colour should be the principal object of the breeder.—R. S. S.

FLOOR OF A RABBIT-HUTCH (H. I. J.).—I would not advise the whole of the floor of the hutch to be covered with pitch; but I think it would be a good plan to cover about 6 inches at the back of the hut, as the Rabbit usually goes there, and it would prevent the wood absorbing the moisture. A south aspect is the best situation for your hutches to stand, but the sun may be too strong for them, which you will observe by the Rabbits going into the new apartment to sleep, or going to the back. They should then be shaded by throwing a little canvas over the fronts.—R. S. S.

LONDON MARKETS.—AUGUST 19.

POULTRY.

The beginning of the Grouse season is the only novelty or change we have to note; young birds have seldom been so scarce in England as this year. We shall have to look to Scotland; and, judging from appearances, we shall not be disappointed. The birds are small, but the young bear their full and proper proportion to the old. The supply of poultry is very small, not equal to the average.

Each—s. d.	s. d.	Each—s. d.	s. d.
Large Fowls	3 6 to 4 6	Leverets	0 0 to 0 3
Smaller Fowls	2 6 " 3 6	Grouse	2 6 " 5 6
Chickens	1 9 " 2 3	Pigeons	0 8 " 0 9
Ducklings	2 6 " 2 9	Rabbits	1 4 " 1 5
Geese	5 6 " 6 0	Wild	0 8 " 0 9

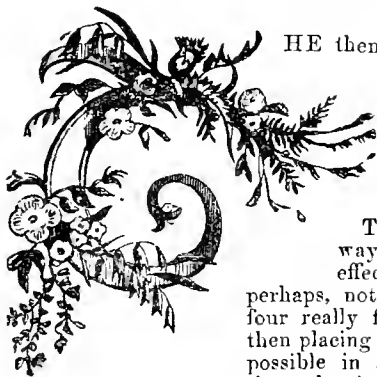
• During the week.

WEEKLY CALENDAR.

Day of M th	Day of Week.	AUG. 27—SEPT. 2, 1861.	WEATHER NEAR LONDON IN 1860.										Clock before Sun.	Day of Year.		
			Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.		Sun Sets.		Moon Rises and Sets				Moon's Age.	
				deg. deg.			m.	h.	m.	h.	m.	h.		m.	h.	
27	To	Clethrass.	29.821—29.673	71—49	W.	—	6	af 5	57	af 6	6	9	21	1	18	239
28	W	Yucca.	29.721—29.694	74—43	W.	1.39	8	5	54	6	44	9	23	1	1	240
29	Th	Jasmine.	29.950—29.789	75—51	N.	—	9	5	52	6	32	10	23	0	43	241
30	F	Periploca græca.	30.122—30.044	74—46	N.	—	11	5	50	6	33	11	24	0	25	242
31	S	Clematis.	30.015—29.939	68—51	S.W.	—	13	5	48	6	moon.		25	0	7	243
1	SUN	14 SUNDAY AFTER TRINITY.	30.045—29.964	71—51	W.	0.02	14	5	45	6	43	0	26	0	12	244
2	M	Celsia orientalis.	29.892—29.840	70—48	S.W.	0.01	15	5	43	6	59	1	27	0	31	245

METEOROLOGY OF THE WEER.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 75.4° and 51.7° respectively. The greatest heat, 92°, occurred on the 2nd in 1856; and the lowest cold, 33°, on the 28th in 1858. During the period 125 days were fine, and on 108 rain fell.

A FEW FLOWERS IN A VASE.



THE theme of my last chapter was, making a good display in vases without very grievously detracting from the beauty of the garden.

There is still another way which I have found effective—that is, taking, perhaps, not more than three or four really fine Geraniums, and then placing them as lightly as possible in a vase of an open shape, leaving the centre merely

filled with a spray of leaves. This seems so trifling that really I should hardly have thought of naming it, were it not that some time ago a vase arranged in this way in an accidental dearth of flowers was considered quite remarkable for its beauty; and, in fact, I am not quite sure that on artistic principles our mixed nosegays are much to be commended.

Certainly a plant is often much lovelier than a bouquet, with its few specimens of a single flower in its different stages, ranging from bud to blossom.

Three Roses all of the same kind, or even one red and two white, or two white and one crimson, with a little foliage are beautiful, and so is one or two clusters of climbing Roses laid in a vase together.

The great secret in these arrangements is to seem to seek only to display a pretty spray of flowers and foliage, not to fill a vase.

My Geranium-vase, I remember, had the clusters of flowers lying lightly around the edge, then the two or three small leaves attached to the stalk just very slightly occupied the centre, making altogether just a little spray.

Wild flowers may be very useful, though they often fail in mixing well in a garden bouquet, because they so seldom present much of a mass of colour. I have found, however, that by grouping them together in little knots before arranging them in the vase, this greater depth of colour can often be obtained, and leaves and berries will thus produce a very gay effect by force of strongly-contrasted foliage.

In autumn, when Ferns of any sort are in plenty, there can be little lack of sufficient flowers to fill up the vases; the Ferns grouped as a bouquet only requiring a few little dots of colour just about the stem to make a far more attractive group than they would do if placed in a crowded vase. Very small crimson, pink, blue, or yellow flowers, all, and each, are appropriate to the foot of the vase of Ferns. Large flowers do not answer well in this case, whatever is their colour.

In the depth of winter, also, it is surprising how gaily a vase may be decked with only a few of the earlier

spring flowers, by collecting the blossoms into clusters as I said just now. Hepaticas, pink and blue; Periwinkles, blue and white; Snowdrops, and even Crocuses, can thus be made available; while one good flower—Hyacinth, Camellia, or Azalea, may completely “make” a bouquet, by giving a good centre to group the other ingredients around.

Ivy leaves also come in most usefully in a winter's vase; and where three or four Scarlet Geraniums only can be spared, a vase filled with Ivy leaves, looking like one wide spray, with a few small leaves drooping over the side, and the flowers, such as they are, showing from amidst and almost from underneath the leaves.

I need scarcely say how pretty during the seasons rather more rich in blossoms such vases may be made, Ivy-leaved Geranium, Crimson Unique, or Scarlet Geranium leaves, taking, if necessary, the place of Ivy; and the blossoms of the White Ivy Geranium, or of any of the pink, or scarlet, or crimson kinds being used for the flowers.

This arrangement is still open to the objection of being all one flower; but as half a dozen are quite as many as are even thus required, I do not think the difficulty will be felt. Where there are several vases to fill, the flowers will, in fact, go much further in this way than in any other; each vase taking one shade of colour, as cerise, pink, scarlet, rose, white, mauve, slate, purple, &c. The Verbenas also coming in useful here.

The chief thing to bear in mind in making up such vases, is not to aim at height but at width. A large, wide bouquet can be better made with six flowers than a high one with thirty. The wide form being also the really prettiest when tolerably well managed.

As for the larger flowers, the beautiful Lilies and Passion-flowers and Roses that are now in blossom—in all cases where five or six vases have to be filled, and where, perhaps, three or four flowers of each sort are all that can be spared, I am quite sure that the same number of flowers that mixed would be none too much for one, may under this arrangement be divided into at least as many vases as there are different kinds of flowers.

I must not fail to remind my readers of the beauty of Anemones and self-coloured double Tulips, as well as of the single dwarf Van Thols, which are such brilliant and useful flowers at a time when flowers are commonly hard to meet with. A stock of these in winter is extremely valuable; but unless people have long been used to hunt up for vases, in all the wealth of August flowers, one is extremely apt to forget that the time has now arrived on which the winter's success depends.—E.

KEW GARDENS.

THE flower gardens at Kew, and the houses and house plants, never looked so well as they do this season—at least not since 1829 when I first visited them, and I have seen them almost every year since.

Perhaps the greatest improvement made since then was Sir William Hooker's “bedding-out” plants. The worst of it is

that so very few of us can afford to get such bedders, or keep them if we had them. They are all Palms, and were planted "out" of huge tubs, not out of doors. They look magnificently, and improve the looks of the grand conservatory amazingly. They are now in flower as free as other bedding plants, so that the "bedding system" is most applicable even to high botany; and the bother is that dairymaids will plant their patches after the fashion of the duchess, rather than on the plan of "so my mother did before me." Kew is the very sort of place to put such notions into such people's heads. Thousands upon thousands go there from London free as thought, and learn all manner of things about country life there—ribbon-borders, shot-silk beds, the contrast and combination of colours, the massing, the bedding, the air plants, the water plants, the snake-bearing plants, the mammoth plants, and the plants botanical. But after all is seen nothing seems to stick to the memory so firmly as the bedding system, and I judge solely from the constant flow of grist to our own mill from that quarter.

No place suits Punch Geranium out of Shrubland so well as Kew Gardens, and Tom Thumbs have never been seen in better or more constant bloom than there. There also are always to be seen the best shows of *Calceolaria amplexicaulis* in England; and this season they have even improved on their yellow beds in the terrace garden in front of the great conservatory, by mixing another shade of yellow with that of *amplexicaulis*. Orange yellow improves the sulphur yellow of *amplexicaulis* as much as the brown yellow of Prince of Orange improves the orange yellow of other sorts. When nothing nearer than the Kentish Hero *Calceolarias* could be had, one of it for every five of the old *Rugosa* breed were planted all over large beds to heighten the effect, as you will see in some of the first volumes of this work. The Trentham Yellow, which is a stronger kind of aurea floribunda, is the orange mixed with sulphur, and the mixture is edged with the young of aurea floribunda, making the richest yellow beds I ever saw. Take this Number to Kew, and let us fix on the centre of one end of the terrace in front of the conservatory, and first see the accompaniment-beds across the end. They are two in number, with a high flower-vase between them—long oblong beds with the corners cut off. There are 4 feet of scarlet Verbena in the centre, 2 feet of Purple King ditto on each side, and 18 inches of *Cerastium* for edging. A pair of such beds and such another vase are at the other end, of course, to match the others. But here let me say they have found out that for all kinds of Verbenas, except Purple King, the Variegated Mint is a better edge-plant than *Cerastium*, or any other plant so used. The reason is that the Mint shoots can be left longer, and being so much stronger uprights, they make a complete hedge or barrier through which the Verbenas cannot push, and next the grass or gravel the Mint can be cut to a perfect slope. The terrace pattern is remarkably well planted this season. You see the four corner-beds, the farthest from the centre bed and from the axis of the terrace, are each in one mass of Tom Thumbs, not a leaf hardly to be seen from our position above them on the gravel terrace. Within these are, also at equal distances, four nearly horseshoe-shaped beds of said mixture of *Calceolaria*; and still nearer the centre, and embracing the centre bed in their curves, are four Purple King Verbena-beds, and on the line of the axis of the terrace are two match-beds, one on each side of the key-bed or very centre: these two are in scarlet Verbenas, Lord Raglan I believe. The centre bed is oblong oval, with a swelling on two sides opposite the centre. There is a vase in the centre of it filled with Punch, and Perilla round the pedestal; then four rings of Flower of the Day and Baron Hugel round them; and *Cerastium* round the whole. There are four circles of Perilla in this centre group, and these were in *Delphinium formosum* while it lasted, and splendid they were by all accounts. The Perillas were got up in readiness in pots to fill the beds the day they were planted. Would we had more such "removes!"

Two more beds on the axis and farther from each side of the centre are triangular-shaded beds, with the two off-corners blunted round. One-half of each of these is on each side of the axis—a difficult thing to deal with; but, say the point in the centre is filled with *Ageratum*, the middle part of each of the legs of the triangle is planted with *Géant des Batailles* Verbena, and the two blunt ends of the same bed are in *Stachys lanata*, or three distinct kinds of plants in three divisions of the same bed—not to make up one bed, as it were, so much as to get the parts to harmonise with other beds near them, which was the main point and difficulty. Two more beds on the axis and still further from

the centre are variegated *Alyssum*; and the first and last on the axis line are small circles in Perilla edged with Golden Chain, being the end beds of one pattern. The outside beds across the centre bed are in *Ageratum*.

The other half of the terrace is the same as it should be; but the distance down across the terrace between these two grand matches is in grass and vases still, probably for want of money to complete the flower design. Across at both ends of the conservatory-terrace are the Dahlia-beds as usual, with Marigold-beds and Asters, making it as if they intended it mostly for the composites or natural-order beds; and outside the Yew hedge which bounds the terrace gardens, and in the angles of the sweep of the hedge are beds of Hollyhocks as last year, and these edged with Ribbon Grass. Both the arrangement and the effect are particularly good. You never see the legs of the Hollyhocks that way; and if you go outside the hedge the legs are in Gardeners' Garters.

At both sides of the lake in front of the terrace garden, and say going round from the terrace, are two oblong beds of the finest Zelinda Dahlia not trained down I ever saw. These are edged with strong yellow *Calceolarias*, and the circles which accompany them are one with Cuphea, Purple King Verbena, and *Cerastium*, and one with Brillante de Vaise Verbena and Verbena Sabini. With these are two oblong beds with *Ageratum* edged with Mint. There are four circles in this arrangement going to the top of the grand centre walk, which were first with *Delphinium formosum*, and now with dwarf Dahlia for succession.

At the other side of the conservatory and through the American garden are eight beds on each side of the walk—another difficulty in the way of planting, as any even number of beds in a line leaves no key or centre bed to plant from. To get over this the two central beds or pair of beds are planted with the same kinds of plants, which leaves three beds, or three pairs of beds, on each side of the centre, and, of course, the first three are planted like the last three, making the arrangement what it should be in such a garden. The two centre beds are in *Ageratum* edged with Lord Raglan Verbena; then one of the three pairs from the centre is with *Calceolaria amplexicaulis* edged with a purple Pelunia; a second pair with Brillante de Vaise Verbena edged with blue Lobelia; and the third pair with China Roses edged with *Cerastium*. These are next the conservatory, and the match pair at the opposite end are in a dwarf kind of Prince's Feather instead, or Roses.

The two raised Arancaria-circles in the centre of the American ground, one on either side of the centre walk, have each four oblong curved beds round the outer side of the circle. These are particularly good this year. Two of them are with *Calceolaria amplexicaulis* edged with Perilla, and two with Brillante de Vaise and Lord Raglan Verbenas mixed, and edged with the Variegated Mint; and there you will perceive the superiority of the Mint for edging Verbenas. But I have another variegated plant in my eye which is even better than the Variegated Mint for such a place, and for a new turn of which you will see a notice in another page.

The system of vases round the lake and on the terraces is one blaze of bloom in one harmonious whole. The four great oblong beds round the barefaced circle of grass at the top of the grand walk and next the lake are different altogether from what they have been. This used to be the head quarters of my old friend and favourite Punch. Now for Punch read *Ageratum mexicanum* not trained, with two rows of Punch all round it, with 14 inches of *Cerastium* for edging.

Down the great walk the arrangement is quite different this season from last season. The promenade-beds are in groups as usual, with single evergreen upright plants between each group, one on each side of the walk. The groups are a pair of oblong beds with pairs of circular beds at each end of them; and the next group only a pair of oblongs, and so on alternately to the centre, and from the centre the same as above it. The first pair of oblong beds are brimful of Lord Raglan Verbena splendidly done and edged with *Stachys lanata*. The four circles of this group are in mixed yellow dwarf French Marigold, and edged with *Gazania splendens* and with blue Lobelias—all very full and complete in itself. The second group is a pair of oblongs planted with *Calceolaria amplexicaulis*, Perilla round it, and edged with 15 inches wide Mangles' Variegated Geranium. I never saw the Perilla so fine as it is all over Kew this season.

The third group is the highest feather in the garden; the pair of oblong beds being in Flower of the Day for centres,

Brilliant Variegated Geranium all round it, and 18 inches wide of Purple King outside. Nothing can beat that for contrast and for "the harmony of contrast," as the great French dyer has it. The fourth group is a pair of oblongs in standard Roses, with Gladiolus, and the ground covered with Mignonette, which, in the midst of such and so much grandeur, looks like a home-baked loaf in a pastery. In the next group the oblongs are of Punch with Mint all round, and the four circles in Atriplex edged with Mangles'. The Atriplex hortensis they do not seem to prize so highly as Perilla. The next group is a pair of oblongs in Purple King Verbenas edged with Tropæolum Tom Thumb, which is not so good as its father and mother for edgings, but for small circles as a whole bed is better than the old one. Next a pair of oblongs with Calceolaria amplexicaulis edged deeply with Purple King Verbena, and the four circles with Lord Raglan Verbena edged with Moonlight, the best white Verbena for this garden inside and out.

The next is in Roses and Mignonette as aforesaid; and the next is the centre of the grand walk. There two other walks cross the line at 80 feet or so apart, and in that space there are no flowers; but the two cross-walks have each two oblong beds on the right and as many on the left, with a circular bed for each of the four breaks. Two circles at the upper cross and two at the lower crossing these are in shot and silk, not shot silk—that is, in Indian shot, or Cannas of three sorts and two aspects—magnificent groups, rich as Rothschild. Canna indica, the plain green old shot for the centre, a row of the purplish Canna Warewiczii round it, and a row of discolour round that; then an edging of the variegated Brilliant Geranium to give bloom and contrast to the masses. But luck would have all the Briliants planted elsewhere ere it was time to put out the Indian shots; and so they are shooting away amazingly well without their brilliancy the first going off.

The first pair of side beds to each of the cross-walks are magnificent—certain—say the above Flower of the Day with Brilliant and with Purple King. The off-pairs from these are first-class Zelinda Dahlia-beds—the plants not trained down, and never should be: these are edged deeply with bands of strong yellow Calceolarias—I never saw bedding Dahlias done half so well. The lower half is as the above, and off we turn to the rightabout, and on to the locket pattern in front of the succulent-house. Just ask your way to the locket or lady's-locket pattern when you go to Kew, and see how you like it—a chain round the neck, a lover's-knot over the region of the heart, and a golden locket hanging down from it on the line of the centre of gravity; but all is gay, and no graveness at all about it. The neck is thick enough for apoplexy; the chain round it is 3 feet wide, and 4 rows of plants; Golden Chain outside, Purple King, then Punch, and Tom Thumb for inner edge. From this the chain is Purple King and Golden Chain to the lover's-knot, and the folds of it are in Flower of the Day, Scarlet Verbenas and yellow Calceolarias; and then the locket, a circle of Calceolarias hanging from a gold and purple chain as above the knot—capital touch for very many of the visitors. Passing the beds by the sides of by-walks, we go to the front of the old museum to see the old fat pig with one ear—not in the museum, but in the front of it. But it is not there. The force of circumstances drove him off over the water, and a new arrangement has been made with the centre of the door in the middle of the building for the pole of the axis of the new composition, which, although merely a fleabite, might be used as an A B O lesson to some one or more in the Councils at South Kensington; and the way a long ribbon-border in front of the composition is made to combine with the few beds in it by an embracing band in neutral tint is worthy of the attention of older pupils.

The neutral band is a narrow bed covered with Ivy only, and runs from each end of the ribbon round so many of the beds, and as many are on the outside of it; but there is apparent reason yet why the Ivy band might not have some variegated plant or some flowering plants not of a strong colour planted along with the Ivy. The centre and key-bed for that composition is an oval bed 18 feet long lying across the axis: it is planted with Punch in the centre, with Tom Thumb all round, and with mixed blue Lobelias and Variegated Alyssum for edging. Beyond and embracing each end of that oval are two match-beds of Zelinda Dahlia, then two beds of Trentham Calceolaria on each side of centre; and still farther out from it right and left two match-beds of Cloves edged with a light Verbena Hipodrome. Behind these are two beds of tall Dahlias edged with

the Ribbon Grass; and beyond comes in the botanic grass garden. The ribbon in front of these has a row of Perilla down the centre, and on each side the same plants are repeated thus—Cineraria maritima on each side of Perilla, and a broad band of mixed Purple King and Defiance Verbenas on the two outsides. Looking along the ribbon against the sun the two Verbenas give a shot-silk cast to the sides of the ribbon, the whole very rich and appropriate, a vast improvement on the old arrangement or rather unarrangement of beds. Verily, the bedding system is getting more and more on its legs every season and everywhere.

The house plants never looked as a whole so well as they are now. The Victoria Lily is blooming in the original house for it near the great conservatory, and in the new tank down in the hothouse department one plant fills a great tank with a dozen leaves, each broad enough and firm enough for a bachelor's dinner table. The Orchids have taken a new lease of their lives and seem to enjoy it. The great variegated plants and the immense Ferns will soon want more room. The great show-house is as gay with the more common summer plants as a lady's conservatory.

The young Cinchonas have made rapid growth, and are now in large 60's and in 48-pots, looking more like a cross-breed between the large Indian Rhododendron arboreum and some Ixora than anything else. Lapageria rosea is now blooming freely in the great conservatory, and also the Mandevilla, showing how very accommodating they are as to temperature. The great Palms look new on the planting-out system as they never did before, and they are flowering in all parts of the huge structure. You heard, probably, of the noise the bursting of the bladder made, from which one of them, the elegant Seaforthia, sent out its curious blossoms; that was from some seven or eight-years-old growth, and on a smooth part of the trunk. Among the other plants in bloom in the great conservatory I noted the following—Meyenia erecta, several Hibiscus, Stephanotis, Lagerstræmia, which holds out a long time, and looks as an indoor Spiræa with carnea blossoms; Justicias, of sorts; Ipomæa Learii, and others; Passion-Flowers, Aristolochias, and Gigas among them, but not in bloom; a kind of the soft Passiflora fetida, with rough hedgehog bracts to guard the poorest flower in the order; Allamanda neriifolia, which blooms always, and all the summer; Scutellaria Venenatii, like some crimson Salvia, and others of more common looks.

In the Victoria-house is a new Dioscorea from Natal, past blooming, free as Pergularia odoratissima of older days, and as little conspicuous. The old Bougainvillea spectabilis which never bloomed in England but in this great conservatory, is also in this Victoria-house; but I did not notice speciosa, the kind which blooms so freely.

There is an arrangement of Cissus discolor in the Victoria-house, which is worth going the length of the kingdom to see. It is this—round the sides of the tank for the Victoria Lily are set ten pots at equal distances, No. 2-pots, I believe, and in them are Cissuses 10 feet high trained up like pillar Roses; and from a yard above the pots each pair of Cissus is festooned together, the lowest part of the bend of the festoon all but touching the surface of the placid lake, as a poet would say; but poetry would fail to describe the charming effect of these pillars of beauty, and those festoons. Then from the four corners of the house, and from the farthest-end centre other plants of Cissus are on their way to be festooned over the walk with those pillars nearest to their run. But you must go and see them. I dreamt about them half the night. I never saw any one thing in our way which pleased me half so much. I had a hundred other things to say of Kew, but I cannot get beyond these Cissuses if it were ever so.

D. BEATON.

DISA "AT HOME."

WE all know how much anxiety there is to see the abode and learn all about the habits of great people. There are thousands who have made their pilgrimage to Stratford-on-Avon, to see the house where England's greatest poet lived, who would not have stirred one foot from home had it been tenanted by a meaner man. How many there are who want to know all about what Her Gracious Majesty eats for breakfast, how she lives, and what she wears, who have the supremest contempt for what their neighbour Mrs. Robinson does in these particulars! And it was no wonder, then, that when that brilliant beauty made

her *début* at Kensington Gore in June, and dazzled with her more mature charms many a looker-on in July, I should feel a desire to know somewhat more about her habits and home. Her dress spoke for itself; and although the other particulars had been told, yet I did want to see Mademoiselle Disa in her English home. If one could but take a pair of wings, what a pleasant thing to drop down on Table Mountain some fine morning, and when the mountain mists had cleared away peep into that ravine where she is now, doubtless, flourishing, although her blooming-time there is not now.

Well, one could not do that; but the next best thing I could was to try and see her growing in that place which has now become famous through the success of its owner, Mr. C. Leach, in making her feel quite "at home" in England. Having had occasion to ask for his permission to have it copied for the "Floral Magazine," I also asked that I might myself be allowed to see it in its growing state, a request which was granted in the truest spirit of hospitality and kindness. Mr. Leach's residence is one of those quiet suburban villas standing in its small piece of garden ground which so largely testify to the wealth and taste of our merchant princes; for, instead of looking for the success of this in the many appliances, and elaborate structures, and accomplished gardeners which some of our show places manifest, it must be sought in that sound judgment and practical common sense which oftentimes does more than genius or wealth.

The first objects that met my view on entering the garden were some very large pots, out of which was growing what to me was an unknown plant—a tall stem springing from a large bulb, and topped with an umbrella of curious-looking scarlet flowers. This I soon saw by the appearance of the bulb was *Brunsvigia Josephine*, which many persons had vainly attempted to flower, but which Mr. Leach, by giving it a harder treatment, had for some years successfully done, his larger bulbs having had forty or fifty blooms on them. It is in this state a fine and curious-looking plant, but not pretty. There is a beautiful bloom on the flower-stalks, but the individual flowers are insignificant. The flower-stem is thrown up first, and then the leaves are produced. Mr. Leach mentioned a curious fact—that he had cut off one of the stems when it was inclined to seed for fear of injuring the plant, and that he had placed it in the ground, and there it had carried on the process and matured the seed.

I also saw standing in pots near the south wall what looked to me very like a store *Orehid*, one of the *Dendrobiums*, and such in fact it was—*speciosum*. Believing that a more successful flowering of it might be attained if the treatment were altered, Mr. Leach has for two or three years been in the habit of turning it out in the summer exposed to all weathers, and, as the result testified, with perfect success. The bulbs, or pseudo-bulbs, were exceedingly vigorous, and flower-buds were already formed in the axils of the leaves. I believe it is Mr. Leach's intention to try it in a cooler atmosphere in the house than it has heretofore been treated with.

There were here also varieties of *Cyrtanthus*, another genus of Cape bulbs allied to *Vallota*; one, *C. puniceus*, he described as very beautiful, and as blooming very regularly—in fact, his great delight seems to be to surmount difficulties and to flower plants which have puzzled everybody else. There is one old gentleman which has as yet very crustily resisted all his attempts—viz., *Cactus senilis*. There he stood, with his venerable locks falling down all over him, but not an attempt to show a bloom. It seemed almost too much to expect from such a senile-looking old "party;" but if it is to be done it will be done here. The *Orehids* in the *Orehid-house* looked the picture of health, but were elbowing one another sadly from their very excess of vigour.

In the greenhouse stood the object of my pilgrimage in all her charms, and in the fulness of youth and strength, with all her blushing honours thick upon her—the damsel of whom *The Cottage Gardener's Dictionary* said, "Perhaps the most splendid is *D. grandiflora*, a native of the top of Table Mountain behind Cape Town, growing in a spongy kind of peat earth on the margin of pools in the wet season; but it has hitherto resisted the skill of British cultivators." Out with that last sentence in your next edition, Messieurs the Editors; it is now as easy to grow and flower as *Vallota* or *Tritonia*, which in their turn have puzzled cultivators. The story of Mr. Leach's success has been often told. For many years he had been in the habit of receiving it from the Cape, and believing, as all the world did, that it required, as most bulbs do, its season of rest, he allowed it to dry off in the winter, and as a necessary result he lost it; but one autumn, noticing that a plant of it still retained its verdure, he

determined to try whether keeping it in a growing state would suit it. This was the very point to hit—it is really an evergreen; for although the leaves die down, yet, ere they do so, the bud is springing up alongside that is to form the new plant. He had sent a plant of it through Mr. Skinner, the well-known *Orehid* grower, to Herr Schiller, at Hamburgh, and he, adopting a somewhat similar method, had been successful also. I saw it under all circumstances—planted in small pots out of doors, others standing in larger pots filled with water, and these apparently, and as one might infer from what has been said of its habit, growing vigorously. As it may be planted out of doors in the summer time, I doubt not we shall, by-and-by, see it in vigour in suitable places at many of the seats of our nobility and gentry.

There are evidently two varieties—one apparently of more vigorous habit than the other, and different in its markings; the tips of the petals in it being green and the scarlet spots of a deeper hue. Mr. Leach has done what he could to have this plant widely distributed; not only has he presented one of his largest plants to the Royal Horticultural Society and given it to friends, but he has in the most generous manner presented twenty plants to the Gardeners' Benevolent Institution. These were sold by auction; but, strange to say, when I was at his house, no one connected with the Society had acquainted him with the result of the sale, or how much it had brought to the coffers of the Society. Surely this must have been an oversight of the indefatigable Secretary!

And what a singular thing, I could not help thinking as I returned, is this local distribution of plants, insects, &c. Here is one of great beauty, which, as far as is known, occurs but in that one spot in the world! And how wonderfully varied are the productions of His hand, who pointed to the Lilies of the field as the types of transcendent beauty, far surpassing all man's labour and skill! How many a time in my entomological pursuits have I found it the same—a species to be found in a space of a few hundred yards, but occurring nowhere else in the neighbourhood, and with no apparent reason for it; its food not by any means confined to that spot.

Well, this is a subject for wiser heads than mine. I have just told what I saw in "Disa's" English home, and can only say that I never experienced more thorough kindness and genuine hospitality, not even in the Green Isle, than I did from Disa's accomplished owner. May not only *Cactus senilis*, but every other obstinate old fellow, yield to his perseverance and skill.—D., *Deal*.

SIZE OF CONNECTION-PIPES FOR HOT-WATER HEATING.

It is proposed to heat an iron curvilinear conservatory 19 feet by 12 feet by 12 feet with twenty-four yards of four-inch cast-iron pipes; but the pipes supplying the hot water, which is supplied from a kitchen range, are only proposed to be one-and-a-quarter-inch bore, and have to pass a distance of 57 feet before their junction with the four-inch pipes in the conservatory; of course, the return pipe from the four-inch pipes back to the boiler will also be one-inch-and-a-quarter bore. The object is to have as small pipes as possible in the rooms the pipes have to pass through before entering the conservatory. Will the one-inch-and-a-quarter pipes create sufficient action in the four-inch pipes? Will the twenty-four yards of four-inch pipes be sufficient for heating the house?—B. H.

[The question will turn to be more one of boilership and boiler setting, and keeping the boiler hot in winter, than the mere size of the conveyance-pipes. One-inch-and-a-quarter will do for that purpose; but the more they are encased in wood, unless the heat be wanted in the rooms, the better. We presume there is a back wall to the conservatory, and that what would be the usual sloping front is curvilinear. If so, the twenty-four yards of piping will keep out frost, unless there is an extra amount of iron in the roof. If the iron is heavy, or the iron bars are thick on the roof, or if you want a temperate heat in the house during all weathers—say 50° to 55°, then you would require from 30 yards to 36 yards of piping. At such a distance from the kitchen, if other things were suitable, it would answer better to have a small boiler directly under the control of the gardener, and for which he would be solely responsible.]

WHICH IS THE QUEEN OF ROSES IN THE GARDEN?—The rose of the watering-pot, for it rains over all the others.

CONSERVATORY CLIMBERS.

I HAVE just built a conservatory, and having rooms underneath it I cannot have any borders for climbers. Will you tell me the best way of growing them to cover an end wall under such circumstances? I want something that will be ornamental, as the conservatory is connected with the drawing-room. It is Gothic iron work, and the floor is of Minton's tiles, neutral colours. Would you also tell me the names of four handsome climbers suitable for such a situation, and that will grow tolerably fast?—A SUBSCRIBER.

[A large pot or tub will grow climbers as well as the best borders. For such a situation nothing would answer better than double red and double white Camellias. Before they filled the space you might have two plants of *Acacia decurrens*, the leaves of which would always look handsome, and there would be fine yellow wreaths in spring. For columns, &c., a pot 15 inches or 18 inches in diameter, or a tub of the same size, will grow the most of climbers well, and they could be so placed as to be ornamental against pillars. If the watering would be too much for the floor, large saucers of zinc or soft ware might be placed beneath them. Four climbers likely to suit you are—*Mandevilla suaveolens*, red; *Kennedy's Marryatta*, white; *Passiflora Colvilli*, blue; *Passiflora cœrulea racemosa*, purple.]

GLAZING A PEACH WALL.

I HAVE a Peach wall, south aspect, 300 feet long, 11 feet high, with a border in front 10 feet wide. I want to cover this border with glass. Will you do me the kindness to tell me what is the most reasonable, and most secure and proper mode of covering this with glass—the frames or woodwork to be fixed? The ground is my own freehold. I propose to have a footing of brickwork, in which to insert front ventilation.—AN OLD SUBSCRIBER.

[First, in such a case we would decide on having three houses instead of one. The extra expense of six ends and six doors over two being more than compensated by the ease with which plants may be taken out, and in allowing plenty of room—say 10 feet at least between the houses.

If the wall had not been all finished and perfect, we would have proposed a double wall-plate on the top of it, with 15 inches between them, and ventilators either of wood, or of wood and glass, pivoted on the studs separating the lower and upper wall-plates. If the wall is finished and must not be meddled with, and has a good weather-coping, then the simplest plan would be to fix a board 6 inches wide, and $1\frac{1}{2}$ inch deep, below the coping, to receive the ends of the rafters. In a very strong wall strong nails might do to fasten it; but to make assurance doubly sure, every seven feet or so an iron bolt might go through the wood and the brick, and be screwed with a nut on the opposite side; a piece of flat iron some 12 inches long, 2 inches broad, and a quarter of an inch thick going next the bricks, and between them and the nut, so that the board inside could hardly move without taking the wall with it. So much for the back.

The front should be 3 feet 9 inches, or 4 feet, in height. The cheapest at first where oak is easily obtainable, would be oak posts and plate of the requisite height, 4 inches square, or 4 inches by 5 inches, 2 feet in the ground; inch-boards for bottom; a hinged board a foot wide for ventilation; and a foot wide of glass fixed above it. Here are now the front and back.

The rafter sash-bars should be cut out of planks 14 feet long, 9 inches wide, and 3 inches thick. Each plank will thus make four rafters. When planed, each will be about $4\frac{1}{2}$ inches deep, and $1\frac{1}{2}$ inch wide. These, fastened to the board at top, and notched, and fastened to the wall-plate in front, give the skeleton of the roof. These will be strong enough to support glass 20 inches wide by 12 inches deep. To avoid the expense of rabbeting these rafter sash-bars, though they would stand the reducing at the sides by half an inch and then be strong enough, slips of wood half an inch square, and as long as the rafter, may be tacked on in the middle and thus form the rabbet. These should be primed and painted before glazing, so that the putty may bed well and stick firmly to the wood. We find this half-inch rabbet is quite sufficient, as mere depth of putty is not wanted. Where glass is twenty-one ounce, or much heavier than that, a deeper rabbet—say about three-quarters of an inch, would be wanted. In glazing, the laps should be from one-eighth to one-quarter of an inch—say three-sixteenths of an inch, and all

regular. To prevent slipping in such heavy squares before the putty is firm, place a small brad at the lower corner of each square, firming it into the rabbet.

All this is quite plain sailing. The only difficulty with such fixed lean-to roofs is ventilation at the apex. Unless in the back wall as hinted at above, many plans may be adopted, but all more or less interfering with the simplicity of the fixed roof. In such a lean-to, and with such large squares of glass, the heat is at times excessive. For such a house, as there is a foot for ventilation in front, there ought to be a foot all the way at the top, or so regulated as to give on the whole that amount of opening. Even then, an opening in the wall a foot square close to the ground at the back every eight feet, would be a great advantage. The whole of these ventilators might be made to move at once with a rod; but during the whole summer they will require to be open. The great thing is to have enough of air. I speak feelingly, as I have rather erred in this direction. In a house somewhat similar, I had small ventilators made to occupy the space of the two upper squares, and intended at first to place them between every alternate sash-bar; but I did not place them so thickly as that, though I wish I had done so, as even with doors open I find in some very hot days I had scarcely enough, and had to make some holes at the bottom of the wall, which made thorough ventilation more perfect. I now judge that with such ventilation between every two alternate sash-bars I should have enough; but on the whole but for the extra expense, I would prefer ventilation all the way and regularly, whether by a small hipped-roof or otherwise. If the trees against the back wall are trained to a trellis 2 inches or 3 inches from the wall, they will not feel the sun so much when exposed to such sheets of glass. We would not say a word against mechanism in ventilation, quite the reverse; but we have seen instances in houses intended chiefly for orchard purposes, where the mechanism for regulating front and back air, though ultimately it would save labour, cost almost as much at first as the glass and wood of the building. The plan we adopted is at least simple.

We should have noticed that a weather-board placed under the coping and over the rafters was grooved to receive the upper end of the uppermost square. Where a ventilator was to be placed which ought to have been at least between every alternate rafter, a piece of wood 1 inch thick and 2 inches broad was let in and grooved on the under side to receive the top square, leaving a space from that to the top of two squares open, less the width of 2 inches of the cross pieces referred to. The ventilator, therefore, to fill the space and rest on and over these cross-pieces required to be 24 inches long, and for more than two-thirds of its length close on 20 inches wide, and the other one-third less than 19 inches wide. The sides of the ventilator are $1\frac{1}{2}$ inch wide and 2 inches deep, grooved inside to receive one square of glass. The upper end is 2 inches wide, and also grooved. The lower end is placed level with the grooves, so that the glass rests upon it, and is prevented slipping by two brads at the corners. The upper part of the sides is reduced a little more than half an inch, so that it shall play easily between the rafters. The lower part is grooved out below so that it shall rest on each side between the rabbets. A screw fastens the narrow part to the rafters, and on these screws the ventilator moves up and down, as on a pivot hinge. A string fastened to the upper end inside pulls the upper end of the ventilator down, and causes the lower end to rise, and the extra weight of the lower end will cause it always to shut of itself when the strain on the cord is removed. A pin and a loop in the cord will keep the ventilators open. A strong cord or a rod might be fastened to all these, and be moved at once. We have for common purposes found nothing simpler than these common screws for pivot hinging. Of course, the hole through the ventilator must be rather easy, that the ventilator may move easily.

A wall in front will look more stable, and, in fact, be more lasting than wooden posts, and the half of it might be in glass sashes to move, and thus considerably increase the expense; but no amount of front ventilation, though open from top to bottom, will make up for a deficiency of air at the top of such a lean-to house. Mr. Rivers does without such top air in span-roofed houses, but there is a free circulation from each side. Before commencing we would recommend perusing the last edition of the "Orchard House," by Mr. Rivers.—R. F.]

PREVENTION OF GRASS GROWING IN PAVEMENTS.—Clean out the joints of the paving-stones and pavement to the depth of

3 inches. Boil coal tar, mix the tar with clean sharp sand to the consistency of grout, and fill up the joints, laying on a layer of clean, sharp sand as you go on; in the course of ten days sweep off the loose sand. I have a large paved or causewayed court, and found great difficulty to keep it clean of weeds until I adopted this plan, and now there is scarcely a weed seen on it.—J. P., *Glan*.—(*Irish Farmer's Gazette*.)

SUBJECTS' FOR HORTICULTURAL SHOWS— DINNER-TABLE DESIGNS.

It is pleasing to observe that the range of horticultural societies' prizes keeps extending; but for some years prior to the Show at the Crystal Palace being established, the prizes given by such societies were of such a monotonous character and so limited in their extent, that it was some relief to find that an addition was to be made to the classes of plants that had been exhibited year after year. In fact, down to the period I speak of there was really less variety of articles at such shows than there used to be thirty years ago; for at that time although the actual number of plants capable of forming a good show was much less than now, the managers of such things had the knack of introducing something or other at such shows that made them both useful and instructive as well as merely pleasing—such as models of garden structures, new implements, or apparatus, or specimens of manufactured articles from home-grown produce.

I remember the governor of a prison sending some excellent cordage that had been manufactured by some prisoners from Hemp that had been grown inside the prison walls. Specimens of the Hemp in its various stages accompanied the manufactured article.

Another addition made to a show, and that much to the satisfaction of the judges, was prizes offered for the best samples of home-made wines. It may be urged that the general public were not much the wiser by this; but the hospitality prevailing at that time was not satisfied unless all the bottles sent for competition went home empty, and the taste of Gooseberry or Currant wine that obtained the prize was as much known to those who did not partake of it, as that of Melons and other fruits are now reported to be at the shows at which they are exhibited, and the maker accordingly received the honours due to his skill, or, what was more likely, that of his better half.

Now, it is certainly unfortunate that the limits of horticultural shows have been so far curtailed during the last few years as to give no encouragement to the above and other matters of a similar kind; but at the June Show at Kensington, a move was made in a direction which I have no doubt will be repeated, in offering prizes for designs for dinner-table decorations. This call was responded to, and its results are matters equally known to most if not all that are engaged in gardening matters. It is, therefore, on the subject of these decorations I beg to offer a few remarks—not, certainly, with any view of creating a factions opposition, but in the way of clearing up some practical difficulties not known, perhaps, to all who think themselves entitled to give an opinion on such matters.

In the first place I may mention, that I have been led to regard everything defective that was designed for the twofold purposes of ornament and utility when its proportions of these necessary qualifications were not well adjusted; or, in other words, every article intended for domestic use ought to combine the two elements of beauty and utility in such proportions as render it suitable for its duties, and that utility should not in any case be sacrificed to mere beauty. Where utility is the chief object, let that be the first provided for; and when the article is purely one designed for appearance, let not good taste be offended by any disproportion of its parts; but let the fancy scan the whole with that feeling of pleasure which true beauty never fails to impart.

Now, in giving this general outline of my ideas on such matters, I regret I cannot coincide with the judgment which awarded so high a compliment to the winner of the first prize at Kensington, of which an engraving appeared in *THE JOURNAL OF HORTICULTURE*, page 321. In differing from those whose judgment placed it there, I confess feeling somewhat diffident; but I, nevertheless, beg them and others who agree with them to well consider the reasons I urge for doing so.

The decorative article being intended for the dinner table ought, certainly, to be as handsome as skill and good taste can

contrive; but no object of human invention can compete with that of the human form; and however graceful a bouquet of flowers may be, neither they nor anything else ought to interrupt the line of vision between one individual and another when seated at table.

I should make it a point to particularly enforce that rule on all having the decoration of dinner tables. A bouquet may look very well in the hands of a lady, but who ever thought of placing one before her face? and yet to place her behind one is doing something very much like it. And a large bunch of flowers on a table at which, perhaps, some twenty or more are seated, conceals the features of three or four at one end when looked at diagonally from the other; and to bob the head right and left, in a hidey-go-seek manner, so as to be able to get a peep at your *vis-a-vis*, is, certainly, neither becoming nor agreeable, and is destructive of that social intercourse which ought to prevail at such times.

To be plain and practical on such matters, I would say, Ornament your table as much as you like above and below the line here indicated; but let it remain clear, if possible, both of cumbersome lights and every other obstruction. The line of vision may be easily ascertained, and it is far from usurping much space. If we take a line from 15 inches to 25 inches from the table we shall include all that is here wanted to preserve, and above and below these limits design and execute whatever good taste allows—and assuredly there is scope enough for it to do much in that way.

Now, in giving the above ideas as my notion of what ought to be observed at dinner table, I am sorry to see the prize design at Kensington to be completely in the way. True, the upper bowl may be so slightly loaded as to obstruct very little; but why is it there at all? Surely something less lofty would have been better; and assuming the upper bowl to be decked out by some one who regards profusion as beauty (and there are many such), a more effectual screen could not well be devised. I am sorry to differ thus from those who, doubtless, have superior taste in everything else; but I must also find fault with it on other points as well, and they of a practical nature.

The prize design, as will be remembered, consisted of a glass bowl supported by a slender glass stem not thicker than one's little finger. This stem is also fitted into a bottom bowl, or saucer, the whole apparatus resembling a pair of wheels with a long, slender axle-tree. Now, the fact of this axle-tree or stem being so small gives rise to a feeling of insecurity; and the whole is so evidently unmanageable in its locomotive qualities, that it can hardly do other than excite the dislike of all having anything to do with it, and it is, certainly, unfit for the table of a public entertainment when the speaking calls for any approbation, as a very little jarring of the table, or even an accidental push against it of the knee, must bring the top bowl down with a crash.

These are matters that probably did not enter into the minds of the admirers of the tasteful device of Ferns, Rose-buds, and Forget-me-nots, all poetic names, and calculated of themselves to elicit a strong feeling in their favour; but a disaster like the one here predicted will, doubtless, alter opinion, or if not, may I ask them to consider what I have urged on the subject of keeping the line of vision between the host and his guests perfectly clear, and see if something at once equally beautiful and effective, as the design in question, cannot be contrived that has not its defects?—J. R.

VARIATION IN PLANTS.

DO CRUCIFEROUS PLANTS HAVE A TERMINAL CENTRAL FLOWER?

In examining the plants of this neighbourhood with a view to obtain the knowledge which entitled me to a certificate of the first class in botany from the Society of Arts, I could not but be struck with the many remarkable cases of variation that came under my notice, and which seem to prove that many of the generic distinctions now recognised by botanists are as artificial as the classes and orders of the Linnæan system. I have seen labiate plants with leaves disposed irregularly instead of being opposite, and with a spiral torsion of the stem. I have counted four stamens in a flower of *Stellaria holostea*. I have seen a young fruit of *Datura stramonium* with three carpels; and a fruit of *Veronica beccabunga* with three carpels, in a raceme of which the other fruits were formed as usual of two carpels. *Oenothera biennis* produced flowers in my garden with five petals and ten stamens, and I

once noticed a flower of *Iris pseudacorus* with four stamens. If all these variations might be perpetuated in races derived from them, we might have a labiate plant with a twining stem and scattered leaves like a *Convolvulus*. We might have Caryophyllaceæ, of which it would not be easy to determine the genus; Solanaceæ, Scrophulariaceæ, and Onagraceæ, having characters at variance with those which distinguish their respective orders; and an *Iris*, not only out of order, but falsifying one of the marks by which Endogens are known from Exogens.

Mr. Beaton mentions a head of Clover which had a central flower regular instead of being papilionaceous. Such a flower I should expect to find on any papilionaceous plant which might produce a terminal flower at all, which I believe to be extremely uncommon. The position of flowers in a cluster, and their mode of inflorescence, are probably matters of more importance than is generally thought. Definite and indefinite inflorescence are in many instances characteristic of the natural orders in which they occur. It is true that there are many cases in which a raceme or panicle may be surmounted by a terminal flower, and such cases seem to have impressed the minds of some botanists with a notion that the distinction between cymes and racemes is only of secondary importance.

I am satisfied, however, that there are many flowers arranged in racemes that are truly indefinite, or incapable of producing a terminal flower, and I write these few lines mainly to challenge attention to the subject, by asking every one who is interested in it, whether they have ever seen the raceme of a cruciferous plant terminated by a central flower?—JOHN GIBBS, *Friar's Place, Chelmsford*.

CONVERTING A LEAN-TO PIT INTO A SPAN-ROOFED PIT.

SINCE reading the article on cold pits in *THE JOURNAL OF HORTICULTURE*, of August 6th, I have been endeavouring to decide how I could change my pit into a span-roofed pit, so that I could get into it and accommodate a greater number of bedding plants than I now can.

I send you a sketch of it. I shall be obliged for your advice. It is in four lights with a division in the centre, each light 3 feet wide and 6 feet long. The flue runs round three sides of the pit; but my difficulty is in how to make the flue a walk, as it does not run where (in case of having four similar lights) the walk would, I suppose, be; the back wall is 3 feet 3 inches from the ground line, and the front wall 1 foot 4 inches. It is excavated about 4 feet, which I find to have been a waste of bricks.—F. H. L.

[We hardly know how to tell you to improve your pit at much less trouble than building a new one. Your pit is now 7 feet 3 inches at back, and 5 feet 4 inches in front, and 5 feet 6 inches wide, four feet of the depth being below the ground level.

First, then, without altering your pit at all, it will be an improvement to have a moveable bottom of boards, supported on four or five posts, and a rail at the back, and the same in the front, unless a few bricks placed on the flue in front would serve the purpose of the posts and rail. These will be a substitute for the out-jutting ledge of bricks spoken of in the article referred to.

Secondly. Leaving the pit as it is, we would alter the flue, so as to leave 2½ feet clear at the end next the furnace, close to the back wall. Have a small doorway there, with steps leading down to it. This, without any other alteration, would enable you to have a pathway along the back of 2 feet in width, and a platform for plants 3½ feet wide. Against the back wall, 15 inches from the top, you could have a shelf 9 inches wide, and 15 inches from the back wall you could have another six-inch shelf suspended from the rafters, and here you could examine all the plants in all weathers, and lose but little room. We do not see how you could increase your room and conveniences in any other way, except by knocking down your back wall, and thus make either a hipped or a span-roofed house.

Thirdly. In making a hip-roof, you might take down your back wall, 6 inches or so below the ground level, leaving the ends as now, and two columns, 9 inches square, of brickwork to support the wall-plate. Build a back wall 2½ feet above the level, and 3 feet from the other, and have short sloping sashes at the back or roof all in a piece, and ventilators in the wall. The walk would still be where proposed, and the back platform would be a bed of earth or sand instead of boards.

Fourthly. To make a span-roof, the present wall would need to be entirely removed. Make the house double the width; the

back wall the same height as the front, sloping sashes on both sides, and ventilation at the apex. If the present sashes move, the new back might be fixed. If both are fixed, ventilation would be required at the apex by ventilators there, or a double ridge-board and ventilators between them. In such a house the flue had better return. Why not rather keep it as it is, and use it as it is, or with the improvements marked first and second, and build a small span-roofed house above ground—say side walls 4 feet high, and ventilators in the wall, and a foot of glass fixed above them, a fixed roof, and double ridge-board and ventilators between them, the ridge to be 7½ feet from the floor? The sash-rafters need not be more than 3 inches by 1½ inch, and be placed to receive glass 18 inches wide; and thus from the economy in using the fixed roof and no sashes, a nice little new house that you could walk down the middle of it, would cost little more than the demolishing of the old back wall, and excavating a great hole 4 feet deep to continue it. If convenient, make the new span-roofed to stand with its ends north-east and south-west, though we would have it east and west if it could not be better. The old pit would be useful for tall plants and many purposes as it is.]

PIT FOR GENERAL PURPOSES.

I HAVE been reading Mr. Fish's notes upon a "Pit for General Purposes," and I am doubting which of his plans to adopt, as I have a situation for one, either for a sloping or span-roof.

I have a wall 8 feet high facing due east, against which I could erect the sloping one, making the front with opening sashes, and having the rafters fixed with openings at the ridge for top ventilation. Would there be much advantage in having a span-roof pit, with the ends facing north and south over this sloping one facing east? If I adopted the span-roof would it not be better, if expense was not considered, to make the side walls 4 feet high and 2 feet or 1 foot 6 inches of glass sashes to open in them, and the height 8 feet to ridge, like the house figured in No. 10, Vol. I., of this year, page 177, as a first-rate Cucumber-house? In either case I would adopt one of the plans suggested by Mr. Fish, for having a division in the pit or house, so as to have one heated more than the other.

Is it much more advantageous to have a span-house standing with its ends north and south than east and west? A good gardener the other day told me he should not object to the latter, as on the northern part he could put plants not requiring so much sun, or cuttings just potted off. This latter I understand from your description at page 177 of this year's volume to be the position of the house at Hatfield, there delineated.

When I am going to the expense of building a pit for general purposes, and which might be used for any purpose, according to the heat to be given, I should desire to adopt the plan that would, under all circumstances, answer the best, and hence my troubling you with this. As the expense is only on the first outlay, I would not consider that in getting the best plan.

I have now only a flued pit, into which I cannot get nor manage to alter it without much trouble, and I will use that for something not requiring so much attention as bedding plants, &c.

I am striking some *Geraniums* of Madame Vaucher, H. Berbet, and Burning Bush, and some good *Fuchsias*, in pots set in this pit, and I have put bell-glasses over them, and kept the pit sashes partly open (for it stands due south). These cutting-pots and the bell-glasses stand on sand. Should I tilt the bell-glasses either by day or night to give air, or should they be kept close till the cuttings are struck? And if air should be given at either time, does the same rule apply to cuttings in the open air under bell-glasses? For instance, such as *Verbenas*, *Petunias*, and *Conospermums*, and *Pentstemons*.

With the common *Scarlets* I am adopting a frame in the full sun, shaded and aired, and the lights taken wholly off at night.—M. E. D.

[See what has been said to-day to "F. H. L.," on this subject. The question lies in a nutshell, and must be left with yourself, though we will give you our candid opinion.

First. You may have a nice house against your present wall 8 feet 10 inches in height, at the expense of the front wall and sloping roof, and it will be easier heated than a span-roof of the same size or greater width.

Second. The span-roof will be decidedly best for the growth of all plants, if the heat is secured to keep all right. Fig. 41,

page 177, would be a capital house for general purposes. If you did not require to propagate largely in spring, you could dispense with the pipes for bottom heat, and have either a sparred platform or a bed on each side. The former would enable you to store many things—as *Fuchsias*, *Salvias*, large kinds of *Lobelias*, &c., beneath the stage in winter. If you contemplated propagating or forcing in spring, then the bottom heat would be advisable.

Third. We have no objection to a span-house standing east and west, with its fronts to north and south. There is the advantage a gardener speaks of, of striking cuttings and placing new-potted plants on the north side; but there is a disadvantage as respects general crops, if the south side should be pretty well stocked with foliage. *Fig. 42*, resembling the house at Hatfield, is built in that way. Air is given by merely moving the sashes on each side. The front pit was filled with fine pot Vines with fruit, ripe at the end of April, and these did not rise so high as to keep enough of light from the Cucumbers behind, which were splendid, and some day we may say more about them. It will be observed that in such a house there was no front openings in the wall, and no bottom heat, except from manure, and yet the results as respects Vines and Cucumbers were first-rate; but every amateur cannot at once be a Burton to manage them. Such a house with mere top heat, and facing north and south, would do well for bedding plants, because the plants on the south side would be so low as not to shade those on the north side. Did we grow Vines, or Cucumbers, or Melons in such a house, we would not have the south plants too thick, and we would train those on the north side so as to come in the openings between those on the south. When the mere question of advantage is put to us, however, we unequivocally pronounce in favour of the house standing with its ends north and south, or north-east and south-west. The great advantages are—that each side receives about an equal amount of sunshine, and at noon when the sun is most powerful, the sun will strike the roof obliquely instead of directly, whilst any side may be kept as dark as desirable by shading. Whilst, then, we would not by any means despise a span-roofed house facing north and south, we should never think of building one in that direction, if we could make it equally convenient to have one facing east and west with its ends north and south. A modification of *fig. 42*, page 177, will do very well for bedding plants, with the sashes moveable as the means of giving air. For general purposes, though more expensive, we would prefer *fig. 41*, and with bottom heat, if early propagating or early forcing was aimed at.

Your Geraniums, &c., will be benefited by a little air at night. Perspiration goes on slowly then, and the pure air strengthens the cuttings. Shut down close before the sun shines upon the cuttings with anything like strength. The same rule applies to all cuttings with leaves on out of doors. If kept close shut night and day, the cuttings are apt to damp and decay, or get too weak for rooting, be exhausting their energies upwards instead of downwards. The great object is to obtain roots formed before the cuttings lengthen anything to speak of. The *rationale* is given in "Window Gardening for the Many," and other places in late volumes.]

A NEW VARIEGATED PLANT.

The plant is not just a new one, only it is new on the stocks. A gentleman who saw scores of yards of it in Ireland as edgings to flower-beds assured me that it was the brightest-looking thing he had seen so used. I have full confidence in his judgment in such things. A plant of the same kind was sent over from Ireland to the last meeting of the Floral Committee, and those members of that body who understand the value of such plants voted a second-rate prize for the plant, but others of the Committee who do not understand such things out-voted the gardeners by one extra vote only; but as the plant is a fit subject and the only subject within our reach for a new turn in flower-gardening, I am sure I shall only be doing justice to the whole of the Committee, and to this plant, by explaining what I mean.

I spent half an hour last June with Sir Joseph Paxton in his own most beautiful flower garden, and the only want there and in very many gardens all over the country is a strong, white-flowered plant, or a variegated plant of equal strength, to cut off the weight of the evergreens from masses of mixed colours just

in front of them. This want has been felt a long time, and more urgently since ribbon-borders have been laid down in front of evergreens. Other cases do happen likewise, in which it is most desirable to give such a finish to a mass of flowers as will mark a boundary between them and what is beyond them; and no plant in our books, I am quite certain, is one-half so appropriate for that move as this plant from Ireland, which is a perfectly hardy plant, being a British subject, and called *Scrophularia nodosa* in the variegated form.

It is as strong as the *Antennaria margaritacea*, and more firm and closer in its growth, and it has been proved by Mr. Cooper, gardener to the Archbishop of Armagh, where the said gentleman saw thousands of plants of it, and being quite hardy it is everybody's plant. Who would have dreamt three years since of giving a prize to the common cottage-garden plant called *Gnaphalium*, or *Cotton Plant*, which is this *Antennaria*? yet the best bed at Hampton Court last year was of that very plant; and the best flower-bed in Surbiton this season has a band of the same *Antennaria* a round the true *Trentham Scarlet Geranium*, with the *Eurothera prostrata* for an edging all round. That bed is in the garden of our worthy rector, the Rev. F. Philips, who is most particular about his flower-beds.

Well, *Scrophularia nodosa variegata* is a better subject for more uses than one than *Antennaria margaritacea*, and the same way of treatment suits both of them to the very letter—that is, to leave them undisturbed till late in April, then to take up the young shoots rising then from a mass of roots, like as *Michaelmas Daisies* or *Asters*, with an inch or so of roots to each. The shoots will then be 2 inches or 3 inches long. They may be planted for bands and edgings as close as young Variegated Mint from spring cuttings. But for the new fancy for the backs of borders, or any mass of flowers, strong patches of the old roots will have to be divided, just as you would an old *Aster* or a *Phlox* in March when digging the herbaceous borders.—D. BEATON.

A RED-SPIDER PLAGUE.

MR. PEARSON, of Chilwell, in discussing the ventilation of some orchard-houses, states that for want of the necessary supply of fresh air, some Cucumber plants in the centre of one of his houses became infested with red spider, which no effort could keep under until proper ventilation was adopted, then the plants became clean and healthy. Now, if ventilation will drive away red spider, how does he account for its presence in the open air? In my garden I have Apple, Plum, and Damson trees, also Strawberry plants covered with it, and in their neighbourhood a house thoroughly ventilated, where, in spite of syringing, sulphur, and Gishurst Compound, Peaches, Figs, Cucumbers, and almost every other plant are eaten up by it. Gishurst Compound produces a temporary benefit; but the insect soon reappears, even on the leaves which have been thoroughly wetted with the Compound. I confess to be beaten, as although I have used the well-recognised remedies and sought in all directions for others, hitherto I have found none but such as are similar in their application to the old-fashioned plan of catching birds by salting their tails.—E. T. Solihull.

OILED SILK FOR ENCLOSING SPECIMENS OF PLANTS.

You wish to know the name of the material I sent the cuttings in. It was bought at one of our Limerick monster shops. It is called oiled silk, is 1s. 6d. per yard, and is nearly half a yard wide.—M. F.

[Of all the "oilskins" this stout oiled silk seems to us the best discovery of the kind that has been made for a long time, not only for sending flowers and cuttings in it through the post, or for seeds to the antipodes, but for various uses in propagation. Roses high up on a pillar or against a wall could easily be layered in fine earth or moss in little bags of oiled silk, or oiled canvass in the same way, and lots of other layers besides. Then for cuts and bruises from garden tools, or for sprains, no doctor's stuff is one-tenth part so good for the cure as a soft linen rag dipped in spring water, and a fold of this oiled silk dipped also in water and folded over the rag, tied and refreshed twice a-day—all which we know from experience. This from Limerick is stout as blue post paper, and a sheet of it, or rather

half a sheet, would be an excellent thing for weak eyes to read print or manuscript through in glaring weather or strong night light.—D. B.]

CULTIVATION AND MANURE AS FERTILISING AGENTS.

By HENRY TANNER, *Professor of Agriculture, Queen's College, Birmingham.*

IN order that a clear view may be taken of the relative value of these agencies, it is necessary that the nature of the soil should be examined, and its general properties understood. Soils may be considered as consisting of matter in three distinct conditions. The first has been termed the active matter of soils, because it exists in a condition capable of being dissolved in water, and consequently available for entering into the circulation of plants and ministering to their growth. It has, therefore, received the term "active," as being ready for the immediate discharge of its duties; and in this respect it differs very materially from the two other portions of the soil. The second portion has been named the dormant matter of the soil—not that it is dead or useless, but simply in a state of inactivity, being insoluble in water, and therefore unfitted for entering into plants. It might, however, be said that all matter which is not active must be dormant, and this is quite true; but for the convenience of more clearly explaining the component parts of the soil, a further division has been found desirable: and hence we have a third portion, or the grit of the soil. We must, therefore, view the soil not as a homogeneous mass, but as consisting of ingredients congregated into three classes, as—

The active matter of the soil;

The dormant matter of the soil; and

The gritty portion.

By the aid of chemical analysis each of these may be again subdivided into the several ingredients of which it may be composed. It will at once be evident that an analysis of the entire mass of the soil would give information which must be looked upon with caution, and used with discretion. If an agriculturist wishes to know the composition of any particular soil, it is manifest that he requires, not an examination of the entire soil, but to know the constituents which compose the active ingredients of the soil, for these are the materials which influence the immediate fertility of the soil and regulate its productive character.

If you examine the three classes already named, you will see that they are simply distinct stages, through which the soil has progressed or is progressing. We have the grit or stony portion—the type of the original rocks, from which all soils are produced; and these are the fractured particles which have withstood the disintegrating action of the atmospheric agencies for a longer period than the other portions. But as under the crumbling influence of the air, moisture, and change of temperature, these become broken up into a smaller and finer state, this gritty matter changes into the dormant matter of our soils, in condition and appearance forming part of the soil, but still insoluble, and therefore valueless as food for vegetation. Such, then, is the matter of the second class, or the dormant portion—viz., the finely disintegrated portions of the rocks and stones, apparently available for vegetable growth, but still not in a condition to fulfil that expectation. When, however, the dormant matter has been more fully acted upon by the chemical agents in the rain and air, then its character alters, and it no longer remains insoluble, but it readily dissolves in water, and consequently assumes the active condition. Thus, each of these stages is a progressive advance—the grit will ultimately become the pulverised dormant matter, and this will advance into the active condition. For these reasons we may consider—

The active ingredients of the soil as the portion ready for immediate use;

The dormant portion to be rendered useful by cultivation;

The grit, which is the store for future years.

We have every reason to believe that each of these portions may be composed of matter equally valuable as fertilising agents, but differing only in one respect—viz., the time of their being available for use. Dr. Daubeny proposed the two appropriate terms of "active" and "dormant" for the two conditions already described, and, in a communication to the Royal Agricultural Society, has shown the extent to which this distinction exists in soils. From the analysis given, it appears that about one-half of the alkalies and one-eighth of the phosphoric acid were in an active form in the soils examined, and the remainder were

dormant. If, therefore, a person had estimated the powers of the soil by its full analysis, he would have anticipated the aid of nearly double the quantity of alkaline matter and eight times the quantity of phosphoric acid which really exists in a form available for immediate use.

I shall now proceed to show the manner in which bodies existing in the soil in a dormant condition can be rendered active, and thereby available for the processes of vegetation. I need not do more than remind you that two agencies are very influential in accomplishing this. These are rain water and changes of temperature. Rain water is not pure water; but as it falls through the air it dissolves carbonic acid gas existing there. It also carries with it some of the atmospheric air; and these gases, being conveyed into the soil, perform very important duties, and contribute to the one which now claims our attention—viz., the conversion of the dormant ingredients of the soil into the active condition. Chemical research has proved that carbonic acid and oxygen co-operate in carrying on a slow and almost imperceptible action upon the ingredients of the soil, thereby changing the insoluble, gritty matter of our soils into dormant matter, this again into the more complete and active state, and then they assist in the final appropriation of it by the crop. Thus, the same agents co-operate throughout the entire change, and enable matter to assume these new forms. This action is of a chemical character, but it is powerfully promoted by the mechanical assistance rendered by changes of temperature. The influence of this is to be traced to the fact that bodies when they are hot occupy more space than when they are cold: hence, by rendering a body hot and cold, you weaken its cohesive power. This is especially observable when the change of temperature is great, or when water is present in the soil. All have noticed the effects of frost upon the clods of soil in our fields—how the frost binds them together with the hardness of a rock, and, when it thaws, crumbles them into a powder. This same action takes place in the particles of the soil in a greater or less degree, according as they may be more or less exposed to the influence, and this breaking up of the soil exposes fresh portions to the action of the chemical agents spoken of. Thus, the combined action of these very simple agencies accomplishes by slow but steady action very material changes in the soil, rendering its fertilising ingredients available for our use, and unlocking the stores which Nature has made for our present and future requirements. This is a very hasty sketch of the materials which we have to deal with; but we must go on to show in what manner the processes of cultivation render the soil more fertile by the development of its own resources.

(To be continued.)

WHAT TO LOOK FOR ON THE SEASHORE.

(Continued from page 382.)

HOLOTHURIDÆ (continued).—SIPUNCULIDÆ.

ECHINODERMATA (concluded).

THE BROWN SEA-SHERKIN (*Ocnus brunneus*), is quite smooth of a pinkish-brown colour with dark spots. Its body is pentagonal, and on each angle are ranged nine large suckers. The tentacula are white, extremely long, and either expanded into finger-like processes or simply pinnate towards the extremities. It is ordinarily about three-quarters of an inch in length, although it frequently attains a larger size. It is a very sluggish creature, and is found on shell-banks at various depths, both on the east and west coasts. It is common in the Frith of Clyde, and the most familiar of all the species on the shores of the Isle of Man. It is also taken with the dredge in the loughs of Strangford and Belfast.

TRYONES.

THE COMMON THYONE (*Thyone papillosa*).—This creature when in a state of rest presents somewhat the appearance of an egg in shape. It is of a brownish-white colour, more or less dusky. It has the power of lengthening itself considerably; and when its tentacles are withdrawn has an uneven appearance, bulging out on one side. It measures from 1 inch to 3 inches in length. Its skin is tough and covered with suckers, which are not retractile. The tentacles are ten in number, large, and of a whitish colour. This animal has the power of ejecting its viscera. It is found chiefly in Berwick Bay, but is by no means uncommon on the coasts of England.

It may be necessary to remark here, that if it be thought in any case advisable to keep specimens of Holothuridæ, they must be preserved in spirits.

SIPUNCULIDÆ, OR VERMIGRADE ECHINODERMS.

These animals derive their name from a Latin word signifying "a little tube;" and in them the radiating character seems almost entirely destroyed, their form and motions being more like those of Annelides or Worms. They have no rows of suckers; and are either destitute of tentacles, or, when such are present, they are regulated by no definite number. The body is formed into slight rings by the foldings of the skin. There are two openings at no great distance one from the other; and the intestinal canal, commencing at one, proceeds to the posterior extremity, makes a turn, and terminates at the other.

We can do no better than follow Professor Forbes in his grouping of the British Sipunculidæ, who divides them into three families—viz.,

THE SIPUNCULACEÆ, which have a retractile proboscis, at the base of which is an opening, and at its extremity a crown of tentacles.

THE PRIAPULACEÆ, also having a retractile proboscis but no tentacles, and a long tail-like appendage with an opening at the end.

THE THALASSEMACEÆ, which have a proboscis, with a fleshy sheath attached and no tentacles.

SIPUNCULACEÆ.

THE ROUGH SYRINX (*Syrinx nudus*).—The Syrinx (Tube



Worm), has a body of a cylindrical form, which is protected by a strong tough skin, deeply scored both lengthways and across, except towards the posterior extremity, where it is inflated, smooth, and longitudinally grooved. It measures generally from 6 inches to 8 inches in length, and is found off Teignmouth.

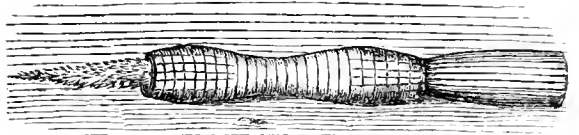
THE PAPILLATED SYRINX (*Syrinx papillosus*), is an Irish specimen, measuring about 4 inches in length and thick in proportion, tapering posteriorly to a point. The skin is of a brownish-white, frequently marked with dark brown patches. It is very tough, finely furrowed, covered with brown papillæ. These papillæ are more numerous on the sides than on the upper and lower surfaces. The proboscis is about one-third the length of the body, and is furnished with a crown of thin flat tentacles, lance-shaped or finger-like at their edges. It has no teeth; but there is a digestive apparatus connected with a winding intestine, which, after twice threading the body, opens in the vent, which is placed near the back. The Papillated Syrinx is generally to be found under stones, and among rocks covered with sand.

THE HERMIT SIPUNCULUS (*Sipunculus Bernhardus*).—This creature, although it is often found buried in the sand, or hidden in the crevices of rocks, most frequently adopts the shell of some dead univalve, in a similar manner to that followed by the Hermit Crab; and, having once taken the house, makes it its permanent residence for the future. On entering on possession of its new tenement, it builds up a wall-work of sand at the entrance, leaving an aperture just sufficiently large to admit of the expulsion of its trunk or proboscis, which it has the power of extending to a considerable distance, and of moving about at will. This proboscis is long and cylinder-shaped, having at its extremity a circle of about twenty tentacles, which, however, are very rarely displayed. The body is smooth, with the exception of a few small bristles at the posterior portion. The colour of this animal is white, and it is found on most parts of the coast of Great Britain. It is frequent on the east, west, and north of Scotland; not uncommon on the coast of Ireland, and is of very frequent occurrence on the west and south shores of England. In what manner it originally takes up its residence in the shell is not ascertained. Whether the egg is in the first instance deposited in the empty shell, or whether the creature is washed there by the action of the water, or whether when once in the possession of a Sipunculus by tenantry it remains in the

family, are questions which have not as yet received any satisfactory solution.

PRIAPULACEÆ.

THE TAILED PRIAPULUS (*Priapulus caudatus*).—This is a



very singular creature, presenting when first taken the appearance of a mere shapeless mass of white flesh; but, if left unmolested for a short time, it will presently show signs of strong and vigorous animation. It assumes somewhat the shape of a dice-box, thrusting out from one extremity a slightly conical proboscis, and from the other a curious thread-like tail, increasing in size altogether from about half an inch, to perhaps 4 inches or 5 inches. It is of a pinkish or blueish-white colour; the body streaked lengthways, and at the two extremities crosswise also. The trunk or proboscis is streaked lengthways only, and is somewhat enlarged at the upper end. The lower end of the body is truncated, and from the aperture proceeds the thread-like tail before mentioned. It has the power of withdrawing the proboscis into the body, although, as Professor Forbes remarks, "the puzzle to the spectator is, as to where it contrives to pack it; especially as on examination we find a fair supply of digestive, circulating, and other apparatus, already stowed inside." The tailed Priapulus was first found in the Zetland seas; but it has also been taken off the Devonshire coast, and at Leith.

THALASSEMACEÆ.

THE COMMON SPOON WORM (*Echirus vulgaris*).—The radiate



features are almost obliterated in this creature, which has a cylinder-like body of 5 inches or 6 inches in length, and half an inch in diameter. It is ringed, and of a bright rose colour. It is destitute of tentacles, but has a proboscis about half an inch in length, which is retractile, and at the base of which is affixed a long scarlet sheath or spoon, not retractile. So very delicately is this strange appendage attached, that the least touch will break it away. Near the junction of this sheath with the body, are two bright golden-coloured horns, short and pointed; these are the genital hooks. The intestine is long and winding, and running the entire length of the animal is a dorsal vessel charged with red blood. The Spoon Worm is perpetually changing its form, which is effected by the taking in and discharging of water. It swims about with great activity, but in the manner of worms.

This animal, in which, as before stated, the character of the Radiata is so deteriorated as to be almost lost, completes our account of the British Echinoderms.

It may, perhaps, be objected that we have devoted too much space to the Echinoderms in a work which professes to confine itself to objects found upon the seashore; inasmuch as those creatures, for the most part, inhabit deep water, and are obtained chiefly by dredging, and as ordinary pleasure tourists are rarely provided with dredges, they would not be likely to come in their way. To this it may be replied, that the Echinoderms represent so large and important a family, that it would have been out of character to have passed them by with only a casual notice. Again, many of them are found on the seashore, either resident there, or thrown up by the action of the waves. In addition to which, tourists often find much amusement in watching the sea fishermen and dredging-parties, and as the former frequently bring quantities up either in nets or on hooks (they are often caught by the haddock-fishers' lines),

and the latter dredge for this very game, the spectator would naturally watch the operations with additional interest when provided with the means of introduction to the creatures captured.

We now proceed to a higher order of marine animals, to which has been given the title of "Crustacea."—W.

(To be continued.)

THE NEW AND RARE VARIETIES OF BLECHNUM SPICANT,

Found in the Neighbourhood of Todmorden and some other Places.
(Read before the Todmorden Botanical Society, by the President, Mr. A. STANSFIELD.)

(Concluded from page 382.)

13. *BLECHNUM ANOMALUM*.—On the 29th of last September, my inestimable friend, Mr. Nowell, and myself devoted nearly a whole day to the examination of that portion of Walsden lying above the church; in fact, the locality which had previously yielded our friends the *Blechnum imbricatum* and the *Blechnum crassicaule*. The weather proved rather unfavourable; we had loud thunder, with heavy showers at intervals, and had it not been for the large masses of inclined grit rock, a thorough wetting would have been the consequence. Our slight investigation of the irregular ground adjoining the church and Birks Mill yielded us little in the way of novelties. As the weather improved towards evening, we ascended to the top of the enclosed land above Henshaw, and came to the moorland. Here were abundance of *Blechnums*, and it was not long before we came upon a most extraordinary form, a form that at once arrested and riveted my attention. Fronds 9 inches to 1 foot in length, attenuated, all the pinnae contracted, all the fronds fertile half way down, all barren below. I had previously witnessed so many freaks played by my little favourite, that I was quite prepared to meet with great divergence from the common type, My mind had sometimes been occupied by imagining varieties of structure of which I thought it might be susceptible; but here was a greater anomaly than I had contemplated in the visions of fancy. I had, up to this time, examined innumerable specimens of *Blechnums*, and had concluded that, when in fruit, it must invariably bear dimorphous fronds; but the plant before me was in fruit, bearing amorphous ones only. This, of course, would remove it into another genus, and constitute it a true *Blechnum*. The most obvious distinction between a *Blechnum* and a *Lomaria* being, that the former bears amorphous and the latter dimorphous fronds—that is, according to Hooker. My surprise at this anomalous structure was only equalled by the pleasure and delight with which I beheld it. And I bore away this prize which Nature here offered me with that pleasing satisfaction and gratitude that can alone be felt by others under similar circumstances. Mr. Moore, of Chelsea, has named it *Blechnum anomalum*. New, unique, and extremely rare.

14. Towards the middle of October I felt a strong desire to revisit the locality which had already yielded so many treasures. Accordingly I devoted the whole of a fine autumnal day to the purpose. Proceeding to the exact spot where the *Blechnum anomalum* had been gathered, I made detours in various directions, from 200 yards to three-quarters of a mile from the place, closely scrutinising the sides of most of the little moorland rills, damp banks, dikes, bottoms of old walls, &c. I laboured assiduously and most incessantly for about six hours, and though several interesting forms turned up, I got nothing very important. Towards evening, however, I made another glorious "find." "Perseverance is again rewarded," exclaimed I. There it was, far up in the moorland, a gem upon which human eye had probably never gazed, growing cozily in the green sphagnum, almost in the water, drinking in the liquid element which silently oozed from the peat above. Surrounded by other common *Blechnums*, it seemed a fairy form among Satyrs. How greedily, but yet how tenderly, did I handle it—did not at all heed going up to the ankles in water—should have gone up to the neck, even in midwinter, to get such a charming thing. The spot on which it grew was about 400 yards from that where the *Blechnum anomalum* was got. Like that variety, it had amorphous fronds, from 4 inches to 6 inches in length, all fertile half-way, very attenuated, thin, and almost membranaceous in texture. The autumn cold had slightly seared the ends of the fronds; but, notwithstanding that, I thought it by far the most beautiful *Blechnum* I had ever seen. Mr. Moore has since named it

Blechnum anomalum minor. Perfectly unique and exceedingly rare; in fact, I believe these are the only plants known.

15. *BLECHNUM MULTIFURCATUM*.—Mr. T. Stansfield and myself met with this variety last autumn near Over Darwen, Lancashire; and we have also received it from Mr. Hillman, Fern collector, gathered near Windermere. Fronds rather above the usual size, all more or less ramously divided at the ends. Very rare.

16. *BLECHNUM BREVILOBUM* (Moore).—I gathered this pigmy but beautiful variety last autumn, in a ravine, a little above Acre Mill Rossendale. Fronds from 3 inches to 4 inches long, scarcely pinnatifid, more entire than any other form I have yet seen, the pinnae being only short triangular lobes or blunt teeth. My acquaintance with *brevilobum* is not sufficient to warrant me in saying that it will be permanent; should it, however, remain constant for another season, it will be a great acquisition.

17. *BLECHNUM GRACILIS*.—This I have found growing among the millstone-grit rocks that bound the upper part of Harleywood Slack. Much less than the normal form, very slender; lobes distant, slightly contracted, much less coriaceous than in the species. It has every appearance of being a permanent form, but this time alone can determine.

18. *BLECHNUM ANGUSTATUM*.—This variety, or sub-variety, I have found more widely diffused than any other. Fronds narrow, linear in outline, less than the species, lobes short, closely set, frequently tiled. It forms beautiful stellate patches, and is very interesting.

19. *BLECHNUM LATIFRONS* (Moore).—This variety, or sub-variety, was gathered by Mr. Nowell and Mr. Patman last autumn in Mytholm valley; and I have also met with it in Eastwood, Pennant-clough, and some other places. Fronds broad, lobes very broad and ample, thick and coriaceous. It is a large and fine form.

20. *BLECHNUM FURCATUM*.—This variety or sub-variety, is by no means unfrequent. I have met with it in almost every locality in this and other neighbourhoods, though in no case, that I have yet seen, are all the fronds characteristic. In most cases the plants only bear one, two, or three fronds that are furcate, with others normal. This seems very extraordinary when we find so many other forms of far greater divergence so perfectly constant. The *Blechnum cristatum*, for instance, has all the fronds crested without a single exception, whether the plants be raised from spores or otherwise, and so of others. But the same thing occurs in *Scolopendrium*, which is rarely, if ever, found with all the fronds simply furcate, whilst the multifid forms are perfectly constant. I am not so much surprised at this in the case of *Scolopendria* as in that of *Blechnum*, as the construction of the rachis, and the venation in the latter would induce us to suppose furcation would often occur. Under cultivation, the *Blechnum furcatum* often produces trifid or branched fronds. I am not without hopes, however, that we shall some day meet with plants bearing uniformly furcate fronds. These, when they are found, will be great acquisitions.

21. *BLECHNUM ASPLENIODES* (of Moore).—This is a large-growing variety, or sub-variety, distinguished by the sori not being continuous, as in the species, but broken into linear or asplenoid forms. Should it remain permanent it will be a great novelty. It was gathered last autumn in Ramsden valley by Mr. John Fielden, and I have also found it in Catholesclough and other places.

22. *BLECHNUM ABRUPTUM*.—I have met with several good forms of this variety, or sub-variety, during last autumn. Fronds normal in size, but terminating abruptly at about two-thirds the usual length; occasionally the two last pinnae changed into two miniature fronds, giving a most singular aspect to the plant. Fronds injured by insects or cattle are not unfrequent, and these put on the appearance of abruptum; but the plant here referred to appears to be naturally abrupt or truncate, the ends of the frond being abortive. As the same thing occurs in *Lastreas*, *Polystichums*, &c., I see no reason why it should not happen in *Blechnum*. But this another season will determine. Should *Blechnum abruptum* remain permanent, it will be no trifling acquisition.

A word as to the cultivation of *Blechnums*. No Fern is more easily managed. A strong loam, mixed with decayed leaves and rotten sphagnum, with fragments of grit-rock interspersed, and a moist atmosphere, are all that it requires. When the soil is light it should have more moisture. Sand or grit is most essential, as the slightest acquaintance with the plant is sufficient to convince any one that it takes up silica; and it would be

worth the while of cultivators to try silicate of potash as a manure for Blechnums. Its native station is in the subalpine region, on moist banks, by dashing streams, murmuring brooks, and dripping rills—the precise spots where the lovers of nature delight to linger, where all nature is free, where man may for a time forego the cares and anxieties of life, and where his mind can acquire that vigour and freshness, and that joyous complacency, which towns and cities fail to give.

TRADE LISTS RECEIVED.

Select List of Hyacinths and other Bulbs. Recommended and sold by William Paul, F.R.H.S., Cheshunt Nurseries, &c., Waltham Cross.—We have examined this list, and can safely say that Mr. Paul has succeeded in his object “to exclude every variety of mediocrity or doubtful merit.” The varieties enumerated are comparatively few; but embrace all the best Hyacinths, Narcissuses, Jonquils, Tulips, Crocuses, &c.

WORK FOR THE WEEK.

KITCHEN GARDEN.

GIVE all possible encouragement to advancing crops by stirring the surface of the soil, and by earthing up such as require it. *Basil* and *Marjoram* to be cut and dried just as they are coming into bloom. *Cabbage*, prepare ground for a large plantation for standing over the winter, to come into use in April, May, and June. *Carrots*, make a sowing for early spring use on a light, dry-laying piece of ground that is only moderately rich. *Cauliflowers*, if seed was not sown last week it should now be done. *Celery*, attend to the earthing, and where the attacks of slugs are apprehended dust with lime about the plants before closing the earth around them. *Endive*, make a last sowing for spring use. Continue to transplant from former sowings when the weather is favourable. *Lettuce*, if a sowing of the various sorts to stand the winter was made during the past week, another good sowing should be made about the latter part of this week. The former to be transplanted in the autumn, and the latter to remain in the seed-bed to be transplanted in the spring. *Onion*, sow seed of Spanish, Tripoli, or Strasburg, to stand the winter. The Welsh may also be sown for drawing in the spring. The other sorts are best transplanted in the spring for bulbing. *Spinach*, the winter crop should now be sown, if not yet done. The operation of sowing above recommended will not admit of much delay; nevertheless, it will be nearly useless to sow without watering and shading; therefore, if this cannot be conveniently done, the various sowings must remain over until a change of weather takes place. Continue to water all the crops that will receive actual injury without it, particularly *Celery*. Keep a sharp eye on the larvæ or grub of a species of cockchafer, which at this season does considerable injury to newly-planted crops, by eating off the roots. The drooping of the foliage is a sure indication of the enemy being at or near the roots, where he is frequently to be found. Carrots and slices of Mangold to be stuck in the ground, where the grubs will feed upon them, and may easily be destroyed.

FLOWER GARDEN.

Collect and dry annual seed. An abundance of self-sown plants of *Lobelia*, *Campanula*, &c., will be found in the beds where the old plants have been growing, these should now be secured by pricking them out into pans or boxes filled with a light, rich soil. Sow *Clarkias*, *Nemophilas*, and *Collinsias* in any spare piece of ground. *Candytuft* will also do to be sown now. New seed vegetates most readily. Sweeping, rolling, and mowing to be attended to at this season. A thorough cleaning of walks from weeds to be made. Evergreen cuttings to be put in, and preparations to be made for the removal of large shrubs by digging around the roots.

FRUIT GARDEN.

Finish cleaning the runners from Strawberry-beds and rows, and make fresh plantations. Set those intended for forcing where they will have the full benefit of the sun. Thin and shorten the shoots of Peach and Nectarine trees; do everything possible to effect their maturation. Prepare for planting in the autumn. Remove all superfluous shoots from wall trees, and expose the fruit; but this must not be done by cutting off the foliage. If the foliage is in any place overcrowded, the fault

is owing to the laying in of the shoots, and the remedy must consist in their proper regulation. Place dry bean-stalks cut in lengths of about 6 inches among the branches, and by this means most of the earwigs may be caught before the fruit becomes ripe.

STOVE.

Shade on bright days as usual, and maintain an atmosphere sufficiently moist to keep the plants in good health without incurring the risk of over-watering, and creating stagnant moisture about the roots. Cleanliness to be attended to, the surface soil of large specimens to be stirred, and weeds and moss removed. Pay attention to such superior plants as *Allamanda*, *Dipladenia*, *Stephanotis*, *Echites*, *Euphorbia*, *Luculia*, &c.

GREENHOUSE AND CONSERVATORY.

Where *Camellias*, Chinese *Azaleas*, and the hybrid Indian *Rhododendrons* were not potted in the spring, and require shifting, the present is the most favourable time, as the young wood is now getting somewhat firm, and the flower-buds are perceptible. The pots to be well drained, using turfy peat and sand, adding an equal portion of fibrous loam for the *Camellias*.

PITS AND FRAMES.

Root a good stock of *Maurandias*, *Lophospermums*, Ivy-leaved *Geraniums*, and other climbers, which add much to the beauty of our flower gardens. Also, robust-growing plants, such as *Salvias*, *Ageratums*, &c., likewise *Lobelias*, *Anagallis*, *Nierembergias*, and other dwarf favourites. All these will root readily in sandy peat or sandy loam, with the addition of a little bottom heat, and a close frame. The propagation of stock for supplying next season's demand should engross all the attention and time that can be spared. Continue to pot off the early-struck cuttings, bearing in mind that all the more delicate bedding *Geraniums* should well fill their pots with roots before winter, or many will be lost. While the stock is increasing attention must be paid to the amount of winter accommodation for them, which, whether in the shape of pits, frames, or larger structures should be got in readiness to receive them before bad weather sets in. Sow the seed of *Pelargoniums* as soon as it is gathered, and also that of any other greenhouse perennial if ripe, before the middle of September.

W. KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

EARLY Ash-leaved *Kidney Potatoes* were raised with hardly anything the matter with them; but fine-sized tubers are beginning to get diseased, after they were housed thinly in a dry place. Part of the ground had Savoy and other things planted between the rows, and these, having the earth spaded against the stems, will soon cover the ground. Other places where the kinds of *Potatoes* had larger head growth, after the *Potatoes* were lifted, have had some rotten manure thrown on the surface of the ground, and beginning to dig deep, a trench is cut out every 2 feet, and *Broccoli plants* that had been pricked out 4 inches or so apart are raised with the spade, the most with balls, and are set some 18 inches apart in the shallow trench, the rotten manure on the surface mixed with the soil, spaded all along the roots, so as to fill the trench half full, firmed, and then well watered. The trench is then filled up by digging until it is far enough to cut out another trench as the work proceeds. The same plan is adopted with pieces of early Peas, Beans, &c. The pricking out of the *Broccoli* and other plants, as previously recommended, is a great advantage in such circumstances. It is not so necessary where great quarters of a kitchen garden can lie fallow until it is deemed time for planting the general winter crop. If I have any envy in visiting gardens, it is in seeing these bare quarters in April, May, and onwards. I never can spare but the smallest piece for such purposes, and the only objection I have to fine kinds of tall-growing Peas is, that unless they are in rows some 20 feet apart, nothing of any consequence can be grown between them. Even those of moderate growth will be grown most economically in rows a good distance apart—say 15 feet to 20 feet, as crops come in nicely between them, and the spaces which the rows of Peas occupied may be used for something else when the Peas are gone. Early Peas are best grown by themselves, as the ground can be cropped again at once as soon as the Peas are gathered. Planted out *Cauliflower* on a bank, and also in a turf pit, where it could receive a little protection to prolong the cutting-season into the

winter and spring. Cauliflower will long remain in a good condition if cut with a foot of the stalk, all the leaves removed, and the stalk inserted in sand, neither wet nor dry, in a shed rather dark and cool, but safe from frost. Watered Dwarf Kidney Beans, Peas, &c., which are feeling the dry searching weather much, and mulched as opportunity offered, water getting scarce. Cleared second and third crops of Cauliflower ground, and marked it out into fifteen-inch rows, with 2½ feet between for late Celery; putting a little rotten dung in the shallow trench, and digging it well, so that the surface of the trench is little, if anything, below the general level, and when earthed up there will be no chance of moisture accumulating about the roots. We grow the most of our Celery in beds; but for spring use we rather prefer a few single rows, so far as keeping well is concerned. Cleared all the Celery in beds of suckers, and earthed up a portion to be fit for table by the 1st of September. Planted out Lettuces and Endive in any open corners. Will shortly fill some turf pits, so as to receive a little protection in winter.

I notice that the early-planted *Brussels Sprouts* are strong and sprouting, and other greens are equally strong. The Brussels Sprouts were planted some 2 feet from row to row, and from 16 inches to 18 inches in the row; but a great gardener told me the other day, that I ought to take a leaf out of his book and plant them considerably thicker, and then from the shade the large lower leaves will drop off sooner of themselves, and the sprouts will come sooner and better. Perhaps there is something in it, at any rate I will try with a few early ones next season. It would be a great thing if our cottager friends could gather earlier and nearly double the quantity from the same ground of such a fine vegetable, the motto of which may well be "Cut and come again; the more you take from me, the more you will get." If the close, firm sprouts do not come fast enough, cut off the small head at the top, and daub the cut with lime and charcoal to cause the wound to heal. The top is even more delicious than the sprouts. I have known epicures in vegetables that would take nothing else so long as they could be had.

FRUIT.

Proceeded with plant-houses, fruit-houses, and fruit trees out of doors much the same as last week. As the first crop of Figs which have given a nice supply for nearly three months are about over, have watered the house, and syringe and shut up close in the afternoon, to encourage the second crop to come on, so that it may be mostly gathered by the middle of October, as after that time Figs are chiefly useful for looking at. Gathered the Morello Cherries, as the wasps render it very problematical whether covering them up would save them; and as they are never used here in the natural state for dessert, they might as well be brandied or preserved for tarts, as give the wasps the chance of having them. Expect we must gauze the openings to the vineries, and put gauze or thin coverings of wadding over late Peaches. Wasps hate anything woolly. What with nest-taking and the chilly night on Monday, have seen fewer about since. Cleared out early Melon plants that had perfected their crop, and made the pits and frames ready for late Cucumbers, bedding-plants, &c., as we cannot afford to have any empty spaces in-doors or out of doors.

FLOWER GARDEN.

Out of doors the chief thing in the ornamental ground has been keeping the place nice and clean. Either from the frost or other causes the evergreens have been extra troublesome this season. Have pieces of the lawn as nice as may be at night, and only let a little wind come, and in the morning the place will be strewn with old decayed leaves of Laurel, Sweet Bay, &c. Even this season, though some large Elms seem in good health, every breeze shakes myriads of yellow leaves from them, though we never used to be troubled until September; and we see at once how much out of place they are before they are swept or picked up, for the latter is the best plan, and by far the quickest, if young nimble hands and flexible backs can be used for the purpose. Of course, we always expect evergreens to shed a few leaves in summer; but this season they have been extra troublesome. I used to have two rows of standard Roses as part of an avenue of beds on a principal part of the lawn, and frost having made them nearly all wrecks, I had made up my mind not to replace them, but to keep all Roses in a corner by themselves, so that their shed petals might not disfigure a short green lawn; but now the sheddings and blowings from the ever-

greens are, if anything, worse. But there are few great advantages, but have some countervailing disadvantages; and if it were not so, "our occupation would be gone." A part of the lawn beginning to be dotted with Plantain-heads, &c.: and as it was too short for sending the scythe or machine over it, which might have made it rusty, we drew the double-edge long-handled knife over it, so as to give it an even green appearance. For such a purpose and knocking the heads off Daisies and other flowers that will sometimes appear on the best lawns, this knife is the best thing that has come in my way. It was described in a late Number.

Used Green's machine freely where there was no danger of browning or burning, working the twenty-two-inch one with two men, each holding and pulling by turns. Some of my friends say one man ought to do it. All I can say, they may do it for me and welcome. It is work quite hard enough for two men if they keep at it and work sharp, and I am sure that two men when the grass is not too long, will mow as much as would require seven at least to do under the most favourable circumstances with scythes and brooms. However, all lawns are the better for being ground by the scythe now and then, and rough places with uneven ground are not fit for the machine.

I notice what Mr. Green says in a late Number as to the terms on which he will supply new wheel and improved chain to the old machines sent to him, if before Christmas, and think them reasonable and honourable. I will see how we get on, as since the removal of another link the machine works well, even though a few of the circular pieces of the links have dropped out. I cannot let the wheel-and-racket ones, with their constant clattering go near the living-rooms.

Repetted a few of last year's Chinese Primroses, and a great number of this summer's sowing, taking them from small 60-pots, and giving them 48's, and placing them on boards behind a trellis of trees, so as to be shaded from the south sun. Divided plants of *Cineraria* that had been turned out into a border, and potted a number of seedlings and set them in any frame to be kept shaded for a time. Will repeat a good number now established in 60-pots, as soon as we can get at them; with plenty of water and a cool bottom they will now grow with great luxuriance, and pretty well set all insects, as fly and thrips, at defiance. However, if any appear, it may be as well to give a little smoke of tobacco, taking care that however given the smoke shall be cool. Treated hard-wooded plants with plenty of air as recommended last week.

CUTTINGS.

Put in cuttings of a few *Verbenas*, *Maurandias*, *Petunias*, and the smaller kinds of bedding *Geraniums*, as *alba floribunda*, *Prince of Orange*, *Citridora*, *Rouge et Noir*, *Diadematus*, &c. These strike best in spring, but they, and all the *Diadematus* breeds, do so pretty well now. Put in also a few of the different kinds of *Heliotropes*, to be followed by others. We used 48 and 60-pots for these, using fresh soil from the highway, with a fair portion of drift sand, after filling the pots one-third with drainage, and topping all with a sprinkling of silver sand. In the larger-sized pots if the cuttings were small, we place two rows round, leaving an open space in the middle for watering, so as to avoid damping in dull weather. In the smaller pots, we put a row thickly on the outside, with the heads leaning inwards, so that the pots may stand close before they are struck. In selecting cuttings we prefer small stiff side pieces, about 2 inches or a little more in length. After cutting these clean across at their base, we remove fully three-fourths of the leaves, but leaving a few small ones at the point. We do this, because the close atmosphere, to keep such leaves healthy and fresh, would be apt to produce damp, and because by thus curtailing the perspiring surface we can give more light and air to the cuttings than they otherwise would stand. For all such cuttings we prefer a cold pit or a cold frame, so deep that the pots shall be from 18 inches to 24 inches from the glass. The cuttings are watered when inserted. Even the first night there is a little air left on the frame, for reasons often given. Next morning before the sun begins to flag the cuttings the air is taken away, and most likely if promising to be sunny a slight sprinkling is given from the syringe or a very fine rose, just to moisten the leaves. So long as the cuttings hold up their heads manfully no shading is given. At that distance from the glass they will stand a little sun; but the cuttings must show no signs of distress. Our maxim is, "Never let a cutting flag." Whenever the least sign of that appears, give shade; but keep it on not one moment more in

the afternoon than is necessary. The cuttings may be dewed about four o'clock again, or even at mid-day if the sun is powerful and the shade rather thin, and air again admitted all night, unless very boisterous indeed. When struck, set out or give more air still. From want of space I must have plants small in winter; but, small or large, their keeping depends on being well hardened off before the winter comes. They will grow fast enough after March. Where there is plenty of room, the young plants may be large if well hardened. In such cases propagation may commence earlier.—R. F.

TO CORRESPONDENTS.

* * We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications.

We cannot reply privately to any communication unless under very special circumstances.

HOW TO FARM TWO ACRES (*Arthur Young*).—The directions are applicable whether the cultivator is the owner or only a tenant. The author has no time to devote to answering private letters. Any inquiry can be replied to through our columns.

PRINCIPAL GARDENS OF GREAT BRITAIN (*A Gardener*).—There is no work devoted to describing them. Almost every Volume of THE COTTAGE GARDENER, both of the first and present series, contains some such descriptions.

FOREKNOWING THE COLOUR OF WALLFLOWER SEEDLINGS (*T. Lambert*).—The darkness of the leaves is not associated with darkness of the flowers. No one can foretell the colour, nor ascertain it until the seedlings are in flower-bud. Then, by cutting across a bud, you can perceive the colour of the future petals.

DRYING FLOWERS (*H. D.*).—We know of no mode of drying flowers without injuring the brilliancy of their tints. A German exhibited some so dried last year at the Crystal Palace, but his process was kept secret. He met with no encouragement, and has returned to Germany, we believe.

CLUB-ROOT (*Rusticus*).—You are quite misled in attributing it to the wireworm. The excrescences contain the grubs of a weevil.

ASPECT FOR KITCHEN GARDEN CROPS (*C. W.*).—To promote earliness let the rows range north and south; to prolong production in Peas, &c., east and west. If the garden is on the side of a declivity, we have the rows across it, for the sake of retaining liquid manure to their roots in shallow trenches. This we consider of more importance than any small difference in the exposure to sunshine. Accidentally we did not receive your note in time to answer the query about Verbena showing.

NEAL'S APHIS PASTILS.—W. C. had better apply to the nearest respectable seedsman. Mr. Neal has appointed agents almost everywhere.

PARSLEY DYING (*A Cheshire Subscriber*).—On a light soil, such as you describe, Parsley is very liable to a disease called canker by gardeners. It is an ulceration which eats through the plant near to where the root and stem unite. Clay and limy rubbish mixed with the soil in sufficient quantity to render its staple more retentive of moisture, will prevent the recurrence of the evil. The same lightness of soil causes your Cauliflowers to button, and the same remedy would be effectual. Give both the Parsley and the Cauliflowers an abundance of liquid manure.

SHANKS' MOWING MACHINE (*J. S.*).—Write to Mr. Shanks for directions how to sharpen it, if the general directions we published some time since are not sufficient.

TROPEOLUM CUTTINGS (*An Irish Subscriber*).—Tom Thumb Tropæolum, in general, comes pretty true from seed, but no cuttings are easier to strike than that. Drain a number of four-inch or five-inch pots, and fill them then with very sandy loam, with half an inch of sand on the top. Select little side-shoots, 2 inches or 3 inches long for cuttings. Remove all the leaves except one or two little things at the point, lay them down in a shady place, the root ends exposed, and the tops kept damp with a little moss or damp paper. In a few hours insert them thickly round the sides of the pot, and place them in a cold frame or pit. If room is short they may stand in the same pots all the winter, and the reason of placing them round the sides is, that you can water the soil without wetting the succulent stems in winter. A few such pots will furnish you with plenty more of cuttings in the spring. Some two or three years ago we soon changed a stock of half a dozen into 500 or 600.

GAZANIA SPLENDENS (*E. M. Sandymount*).—We have rooted many of splendens and of rigens last June and July from cuttings in the open air, but shaded the first week. The soil is yet warm enough for this work, but no time is to be lost.

SPRING SOWING LOBELIA SPECIOSA (*Idem*).—If you save your own seeds of any of the varieties of blue Lobelias they will come true from those seeds, and will come up well and abundantly if you sow them in February, March, or April in the open air; but then it would be past Midsummer before they were large enough to handle, and, except gracilis, it would be nearly past August before they would do any good in the flower garden. We have done them so over and over again, but there is little practical use in it.

WORK ON KITCHEN GARDENING (*Inquirer*).—For the price you name, there is none better than *The Cottage Gardeners' Dictionary*. You can have it from our office for 5s. 4d.

PRESERVING BEANS AND PEAS FOR WINTER USE (*J. Z.*).—If you will purchase No. 350 of our first series you will find full directions. They are too long to extract.

DILYTRIA SPECTABILIS AFTER FLOWERING (*L.*).—After flowering the plants should be hardened a little under some shelter, and then be planted out in rich light soil, such as Phloxes like best. In strong wet soil it makes too much top growth. If the plants are large it is a good plan to divide the balls with a knife, and make each into four parts, and cutting off the tops, then water, and all is right.

PROPAGATED VARIATED ARABIS (*Idem*).—October and November are the best months to divide Variegated Arabis, and then every little morsel with a root to it will make a capital edging-plant the following season; and every morsel of it that has not then got a root will do just as well as if it had, for it will root through the winter under a hand-glass, just as other plants do in summer. It will also force from November to May into new shoots, and every two inches of it will root like Verbenas all through the winter.

VARIATED ALMA (*E. B.*).—You sent the plain white leaf of a sport from Alma Variegated Geranium in a sticking-plaster instead of in a filmy oilskin, or in prepared silk in oil, which is a better material. The sticking-plaster and the plain white leaf were all in one mass of stickiness, that no invention could unfold or separate them. Almost all, if not all, variegated Geraniums and other variegated plants make clean white sports occasionally. The same occurs in all our annual batches of seedlings. We had over a score of them this very season. We call them albinos, and give them a chance for their lives; but, like the sport shoots of pure white, they are of no practical use, as no one can make any use of them. Just at this time we have an example of one of the most extraordinary white sports we ever heard of, and we are passing it through a strange ordeal, which may or may not reveal something worth talking about. Some of them are "excessively pretty," as you say; but excess of beauty is not just the right sort of sport to put under experiments of propagation, and you think no more of yours, for they are of no use at all except for the year or season. Variegated Alyssum and Arabis and Mangles are never free from them in such rich soil as your garden is, so that the better the soil the more manifest is the disease.

MELON CULTURE (*Cucumis Melo*).—We think that you must have seen just what suited you not long ago. However, we will epitomise to meet your ease. Your pit will answer admirably. The flue will answer for the purpose if strong enough. If you take it all round the pit, 10 feet or so from the furnace should be brick on bed—in fact, but for the expense, we would have most of the front flue brick on bed, and the rest brick on edge, and covered with the twelve-inch tiles. Over the flue you may make a bed of clinkers and gravel for your pots; but the pots will do admirably set upon the top of the flue with a thin tile on each side of the pot to prevent the bottom of the pot being too hot. When growing set evaporating-pans on the flue. The trellis would be better at 15 inches or 16 inches from the glass instead of 12 inches. A good size of pots is 15 inches, but 12 inches or 18 inches will do, the former for small kinds, the latter for large ones. Sow the seeds in the usual way. Pot off singly, nip out the point when the plant has three or four rough leaves, train them to one stem, nipping out all others as soon as you can see them in the axils of the leaves. When a nice plant in a four-inch or six-inch pot, and before being matted in the roots, transfer at once to the large pot using chiefly strong loamy soil. Train the shoots, nipping out all the buds from the axils of the leaves for 2 feet or more, but preserving the large leaves. Stop the shoots when 3 feet or more long, and allow the laterals then to come, and stop above the fruit, and set and treat in the usual way.

FRUIT TREES FOR WEST AND EAST WALLS (*South Hants*).—You state neither the length nor height of your walls. On the west we would place Noblesse, Royal George, and Barrington Peaches; Elruge and Violette Hative Nectarines; and Moorpark Apricots. On the east wall such Cherries as Elton; Circassian Plums, as Coe's Golden Drop, Jefferson's, and Washington; and if room such Peas as Marie Louise and Seckle; but we can give no determinate advice under the circumstances, as your wall may be 10 yards or 100 yards long, and near London or near Inverness.

ROLLER SHANKS FOR GREENHOUSE (*Sunshade, Dublin*).—We do not think a sketch necessary. The simplest mode for a house—say 20 feet to 30 feet long, is to fix the shading-cloth firmly by tacks to the apex of the roof on one side, and to a round roller from 2 inches to 2½ inches diameter at the front. The end of that roller to have a groove, or wheel with groove, beyond the house, to contain a yard or two more of rope than double the width of the roof. There should be a stout nail or pin to fasten the rope to. You may have a pulley-wheel at the apex opposite the wheel through which the rope works. When you pull the rope the strain will cause the roller to mount the roof and take the blind rolled up on it with it. It will do very well without any pulley-wheel however, and with less rope, by wrapping more than the width round the groove at the end of the roller when down, by pulling the end at the bottom the roller must run up the roof. When the house is much longer—say double the length, the best plan is to have such a pulley at each end, and one in the middle, but the middle one fastened at the apex, brought down under the blind, taken over the roller and up to a pulley at the apex, and the end brought down again within reach of the two end cords, are taken over a pulley-wheel at the apex, and are then taken along the apex of the roof to the centre, and each passed over another pulley-wheel there, and the ends brought down to the front. It is evident that one person may pull all the cords that will move the whole roller at once. The first for houses of moderate size is the simplest. When fastened to the roof, and you apply the strain to the blind, the roller must turn round and rise, and you can fasten it where you like by means of the rope going round a pin. This mode of shading is, however, expensive, strong blinds seldom lasting long. We have frequently alluded to size and a little whitening, a d also to the blinds fastened inside with rings; but the outside ones are very handy where expense is no object.

SIZE OF BOILER (*A Subscriber*).—The surface exposed to the fire is the only circumstance in its size that can serve as a guide for ascertaining whether it is sufficient for heating a known length of piping. For your 250 feet of four-inch pipes, 5½ square feet of the bottom of the boiler ought to be exposed to the fire.

HUMES AND DIANTHUSES (R. F. S.).—Humes, like Wheat and Barley, flower and seed, which finishes their course; then they are cut down, and the next crop of them is reared from seeds. But Humes take six or eight months longer from the sowing to the flowering, so that the seed has to be sown yearly in April, while the Wheat need not be put in till the following October or November. All the new Dianthus-like the same soil as the Sweet Williams—that is, any moderately rich, friable, garden soil. The same soil as for Lettuces or early Radishes, and that on the farm which yields the best Barley would suit all the garden Dianthus.

MILL-HILL HAMBURGH GRAPE (J. B.).—Our opinion of the Mill-hill Hamburg is—and we have grown it for some years—that, if cultivated by a first-rate gardener with ample means at his command, it is just as good as the old Hamburg, but not better in any one point save the size of the berries. We would never recommend the Mill-hill Hamburg to any one who is not a first-rate Grape grower.

PILLAR ROSE (Idem).—The best pillar Rose for a villa garden is difficult to select; but there is none better than Général Jacqueminot, and suppose we say a two or three-year-old plant worked on any stock quite close to the ground. Then suppose we admit that Mr. Rivers made the best of all his hits about Roses when he found out that, by burying the budded or grafted parts in the earth at the time of planting, the Rose ultimately rooted for itself above the budded or grafted part; and that so Roses of all sorts, as well as pillar Roses, are enabled eventually on their own roots to make such beautiful heads. There are two beautiful newish names to two remarkably handsome Roses—Anna Alexief and Anna de Diesbach, and for a pillar it would be difficult to choose between them. Then there is the Comtesse de Chabillant; and where was a better pillar Rose ever seen? To say nothing of such charming pillar Roses as the Duchess of Norfolk, Queen Victoria, General Simpson, Oriflamme de St. Louis, and so many Madames and Mademoiselles as would fill a long avenue with exquisite beauty, and with harmony and delicious odour.

SEEDLING APPLE (Shaw and Crossland).—Your seedling Apple is not really ready for use, and hence we cannot form any judgment upon it. Send it again when ripe, and send the best specimen you have. It is no use telling us it grows as large again; let us see it.

ANEMONES DONE GROWING—GERANIUM AND PETUNIA CUTTINGS (Kent).—The Anemones instead of being watered should have been taken up when the foliage decayed, cleaned and dried in the shade, and then put into drawers or bags, and planted either at the end of October, or the beginning of February. The Nutmeg and most of the sweet-scented Geraniums strike most freely in spring, in a little bottom heat. At present select some short side shoot 2 inches to 2½ inches long, cut across at base, take off fully half the leaves, and insert five or six round the sides of a four-inch pot half filled with drainage, and then an inch of sandy peaty loam and silver sand on the top. A close, cold frame or a close hand-light is the place for them, keeping close and the floor of the place moist during the day, and shading in very bright sun, and leaving air on at night by tilting the glass half an inch. The Petunias had better be potted separately in three-inch pots, or potted four round the sides of a five-inch pot. We prefer the first where there is room. If you succeed now so well with Petunias, there will be no fear of success with Nutmeg Geraniums. You write very well, but if you are a young man take our advice and avoid flourishes in writing, and capital letters unless where you see such introduced in print. We have twisted the last three or four lines of your letter, and yet cannot make it out. So if there is anything we have not noticed write again.

FUCHSIA LEAVES (J. Witter).—The leaves of your Fuchsia were not variegated when they reached us, but of one colour, though not the true colour. They were as all the young leaves of Tom Thunb Geraniums come out first early in the spring—that is, a pale yellowish-green; or else the way you prepared the leaves to come by post makes them look so. You steeped them in some kind of oil which preserved them remarkably well; for they were as plump and fresh in a common letter as if they had been put up in oiled silk.

WELLINGTONIA GIGANTEA BRANCHES DECAYING (R. S. F.).—Some of the sprays you enclosed may have been injured by last winter's severity; but others seem decaying naturally. We fear that it is natural for the lower branches of this Conifer to die early. All the parent trees in California have stems without branches for more than half their length.

SPERGULA PILIFERA—LOBELIA SPECIOSA (An Amateur).—Your bank is too dry for most plants; but even if it were a stiff clay the *Spergula pilifera* would soon clothe it, and without the clay pilifera would have behaved just in the same way. On the level ground our own native *Spergularias* or *Spergulas* are all the better for light land than pilifera. *Lobelia speciosa* comes perfectly true from seeds; but all kinds of *Lobelias* have been sold last spring for speciosa.

GREENHOUSE FERNS FOR TABLE DECORATION (E. C.).—The following greenhouse Ferns are all suitable for introducing on the dinner table, for drawing-room ornaments, for nosegays, and hanging-baskets. They are also easily managed, and not expensive:—*Adiantum assimile*, *cuneatum*, and *formosum*; *Asplenium odontites*, and *viviparum*, or *Fennel Fern*; *Blechnum gracile*; *Cheilanthes elegans*, *micromera*, and *spectabilis*, great favourites; *Doodia aspera* and *caudata*; *Lastrea pubescens*; *Nephrodium unitum*; *Platyloma atro-purpurea*, *calomelanos*, and *ternifolia*—three of the best Ferns under candle or gaslight; also *Platyloma falcata* and *rotundifolia*; and *Polypodium effusum*. Poinsettias require a stove.

CONVERTING A PASTURE INTO A GARDEN (T. C.).—From all the portion to be occupied by the kitchen garden and orchard we should strip off the turf at once; stack it, and let it decay in the heap; then remove to one side all the loamy surface soil; then pare and burn 3 inches in depth of the clayey subsoil, and underdrain the entire plot. The decayed turf, burnt clay, and loam will form an excellent soil. If this is all done now, then you may plant all your trees in October, and save a year. Spring planting is always to be avoided, if possible. Leave the turf, if it be good, where it is intended to have a lawn. But the portions to be used as flower-beds and borders ought to be served as we have directed for the orchard, &c.

NAMES OF FRUIT (W. H. Hodges).—Your Apple with the fine bloom upon it appears to be Red Astrachan. The other which is pale and smooth in the skin is not ripe and not known.

NAMES OF PLANTS (W. X. W.).—It is *Calluna vulgaris*, the common Heather, seeds of which must have been mixed in the peat soil used for potting. (*Alpha*).—Merely *Cystopteris fragilis* in a reduced form.

(X. T.).—Your plant being succulent was nearly reduced to a pulp in the post-office; it appears to be *Boussingaultia baselloides*. (*W. C. C.*)—1, *Athyrium filix-fœmina*; 2, *Cnicus palustris*; 3, *Centaurea nigra*; 4, *Chrysanthemum segetum*; 5, out of flower, but appears like a *Micromeria*.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

CRYSTAL PALACE POULTRY SHOW.

THIS Show of chickens of 1861 commenced yesterday and will continue until the 29th. We give a list of the prizetakers, but must reserve our report until next week.

SPANISH.—First, J. R. Rodbard. Second, J. Martin. Third, J. K. Fowler.

SPANISH.—First and Second, J. R. Rodbard.

SPANISH COCKS.—First, E. Wright. Second, J. K. Fowler. Third, J. Weston.

DORKING (Coloured).—First, Hon. W. W. Vernon. Second, J. Lewry. Third, E. H. Garrard. Fourth, J. Frost.

DORKING.—First, J. Lewry. Second, Mrs. F. Blair.

DORKING (White).—First, H. Lingwood. Second, Rev. G. F. Hodson.

DONKING COCKS (Coloured and White).—First, Capt. W. W. Hornby, R.N. Second, J. Lewry. Third, Lady J. Cornwallis.

COCHIN-CHINA (Cinnamon and Buff).—First and Third, J. W. Kelleway. Second, S. Statham.

COCHIN-CHINA (Brown and Partridge-feathered).—First, Miss V. W. Musgrove. Second, P. Cartwright. Third, E. Hudman.

COCHIN-CHINA (White).—First, W. Dawson, (Hopton). Second, A. E. Smith.

COCHIN-CHINA COCKS (Coloured and White).—First, J. W. Kelleway. Second, Miss V. W. Musgrove.

BAHMA POOTRA.—First, Lady L. Thynne. Second, J. K. Fowler.

BAHMA POOTRA COCKS.—First, Mrs. F. Blair. Second, withheld.

GAME FOWL (White and Piles).—First, R. R. Clayton. Second, G. Croft. Third, J. Monsey.

GAME FOWL (Black-breasted Reds).—First, H. Horton. Second, J. Heath. Third, S. Matthew.

GAME FOWL (Brown-breasted and other Reds, except Black-breasted).—First, J. Fletcher. Second, J. H. Cuff. Third, E. Archer.

GAME FOWL (Duckwings and other Greys and Blues).—First, Hon. W. W. Vernon. Second, P. Mason. Third, A. Guy.

GAME FOWL (Blacks and any other variety).—Messrs. Noble & Ineson. Second, J. Fletcher.

GAME COCKS.—First and second, J. Fletcher. Third, E. Archer.

HAMBURGH (Gold-pencilled).—First and Third, J. Munn. Second, A. E. Smith.

HAMBURGH (Silver-pencilled).—First, J. Martin. Second, Master E. E. Keable. Third, J. Munn.

HAMBURGH COCKS (Gold and Silver-pencilled).—First, R. Oxley. Second, J. Munn.

HAMBURGH (Gold-spangled).—First, G. Brook. Second, S. IL Hyde. Third, H. Carter.

HAMBURGH (Silver-spangled).—First, Lady J. Cornwallis. Second, W. Wood. Third, J. Robinson.

HAMBURGH COCKS (Gold or Silver-spangled).—First, Mrs. Beardmore. Second, S. H. Hyde.

POLANDS (Black with White Crests).—First, T. P. dwards. Second, Messrs. Hepworth & Coldwell.

POLANDS (Gold).—First, withheld. Second, A. E. Smith.

POLANDS (Silver).—First and Second, G. C. Adkins.

POLAND COCKS.—First and Second, G. C. Adkins.

MALAY.—First and Second, N. Sykes, jun.

ANY OTHER DISTINCT BREED.—First, W. Dawson, Hopton. Second, T. Walton. Third and Fourth withheld.

GOLD-LACED BANTAMS.—First, T. H. D. Bayly. Second, Miss E. Hodson.

SILVER-LACED BANTAMS.—First and Second, T. H. D. Bayly.

BANTAMS (white, clean legs).—First, T. H. D. Bayly. Second, F. Hardy.

BANTAMS (Black).—Prize, E. Hutton.

BANTAMS (Game).—First, T. H. D. Bayly. Second, F. Angel.

BANTAMS (any other variety).—First and Second, Rev. P. W. Story.

DUCKS (Aylesbury).—First and Second, Mrs. Seamons.

DUCKS (Rouen).—First, Mrs. F. Blair. Second, Mrs. H. Fookes.

DUCKS (Black).—First, C. Ballance. Second, G. S. Sainsbury.

DUCKS (any other variety).—First, T. H. D. Bayly. Second, C. Baker.

GESE (White).—First and Second, W. Mansfield, jun.

GESE (Grey and Mottled).—First, Mrs. F. Blair. Second, Mrs. Seamons.

TURKEYS.—Prize, Rev. T. L. Fellowes.

ORNAMENTAL WATER FOWL.—First, T. H. D. Bayly. Second, C. Baker. Third, Marchioness of Winchester.

PHEASANTS (any new variety).—Prize, M. Leno, jun.

GUINEA FOWLS.—Prize, H. P. Benett.

PIGEONS.

POWTERS OR CAOPPEAS (Cocks of any colour).—First, J. Paton. Second, E. L. Corker. Third, T. H. Evans.

POUTERS OR CROPPERS (Hens of any colour).—First, E. L. Corker. Second and Third, T. H. Evans.

CARRIERS (Cock, Black and Dun).—First, J. Parkes. Second, E. L. Corker. Third, Major F. C. Hassard, R.E.

CARRIERS (Cocks of any other colour).—First, J. Ford. Second, Major F. C. Hassard, R.E.

CARRIERS (Hens, Black and Dun).—First, P. Goss. Second, Major F. C. Hassard, R.E. Third, J. F. Mortimer.

CARRIERS (Hens of any other colour).—First, Major F. C. Hassard, R.E. Second, F. Esquilant.

DRAGONS (Blue).—Prize, R. J. Morley.

DRAGONS (any other colour).—Prize, F. G. Stevens.

ALMOND TUMBLERS.—First, E. L. Corker. Second, F. Esquilant. Third, J. Percival.

SHORT-FACED MOTTLES.—Prize, F. Esquilant.

SHORT-FACED BALDHEADS.—First, J. W. Edge. Second, F. Esquilant.

SHORT-FACED BEARDS.—First, E. Archer, jun. Second, H. Bance.

SHORT-FACED TUMBLERS (Self colour).—First, R. Fulton. Second, W. H. C. Oates.

JACOBINES.—First, F. G. Stevens. Second, A. G. Brooke.

OWLS (Blue or Silver).—Prize, F. G. Stevens.

OWLS (Yellow, or any other colour).—Prize, H. Morris.

NUNS.—First, A. G. Brooke. Second, withheld.

TURBITS.—First, G. Goore. Second, J. Percivall. Third, F. G. Stevens.

FANTAILS (White).—Prize, C. Allison.

BABES (Black).—Prize, G. Goore.

BABES (Yellow, or any other colour).—First, J. H. Craigie.

MAGPIES.—First, E. L. Corker. Second, S. Wills. Third, H. Morris.

TRUMPETERS (Black Mottled).—Prize, withheld.

TRUMPETERS (White, or any other colour).—Prize, F. Key.

SPANISH AND LEGHORN RENTS.—First, F. Key. Second, T. D. Green.

ANY OTHER VARIETY.—First, A. G. Brooke. Second, A. Crossman. Third, F. Smith, jun. Fourth, H. Morris.

RABBITS.

FOR LONGEST EARS.—First, C. King. Second, W. S. Roffey.

BLACK AND WHITE.—First, R. Hawksley. Second, T. Goodall, jun.

YELLOW AND WHITE.—First, C. Sellen. Second, J. Quick.

TORTOISESHELL.—First, J. Morris, jun. Second, T. Durbridge.

BLUE AND WHITE.—First, W. Griffin. Second, Messrs. Guest & Coleman.

GREY AND WHITE.—First, R. Cook. Second, J. Croft.

SELF COLOUR.—First and Second, J. Hincks, jun.

FOR WEIGHT.—First, W. Martin. Second, G. Jones.

FOREIGN RABBITS.—First, Miss K. Bailly. Second, C. L. Sutherland.

Judges of Poultry, Messrs. Bailly and Hewitt; of Pigeons, Messrs. Bellamy and Cottle; of Rabbits, Messrs. Daucks, Fox, and Webster.

MORE ABOUT THE POULTRY DEATHS.

IN reading over the list of victims at the late Poultry Show at Sheffield, I see none so unfortunate as myself. The losses enumerated in your paper are confined to a single bird in each pen; whereas, all my three prize birds in Pen 61 died a few days after their return from the Show. They came back with their combs perfectly black, and with an intense thirst upon them, and after lingering a couple of days the cockerel and one of the pullets died, and the other pullet expired two days after.

I wrote to Mr. Dawson as soon as I had seen them, to complain of the sad condition in which they were sent back, to which letter he civilly replied; but of my report of their deaths he has taken no notice.

It is the more annoying, as these birds were entered at the Crystal Palace, where, as you had reported them in your last week's paper, as "far a-head of all their rivals" at Sheffield, I might have looked for further success.

I had a pen of old birds at Sheffield which returned in perfect health.—JOHN F. NEWTON, *Kirby-in-Cleveland, Yorkshire.*

I AM truly glad to see that you have taken notice of the mysterious deaths at the Sheffield Show; though certainly I should not have taken any public notice of it myself unless some one else had done so first, as my loss was small compared to some others, though there is no doubt it was the drake out of my best pen, and one which I have not the least doubt would have appeared in the prize list. In your remarks I entirely concur; and that my drake died from no ordinary cause I am and always have been fully convinced, and, in fact, wrote to the Secretary immediately after the Show to that effect; and I think under all circumstances that it is a pity that the Committee, instead of returning all these dead birds to the unfortunate owners, to give them every opportunity of using all means to ascertain the cause of their birds' deaths, should have kept them all.

One remarkable feature in the case appears to be the fact of all these birds having died or become ill *before* the awards.

I can confidently say that when my drake left home he was in

perfect health and condition. Let "SELIM" come out in his own name and tell us all he knows, and I am mistaken if he would not put us in the track to trace this mysterious affair to the fountain head. I most earnestly hope we may be able to do so, and for one shall be most happy to do anything in my power to attain that object.—G. SAUNDERS SAINSBURY, *Rowde, Devizes.*

DRESSING FOWLS FOR EXHIBITION.

WILL you inform me if I could have anything done to the face of a Spanish cock in the way of reducing the fulness of the crests, or folds of white, without disqualifying him for exhibition? He is a young bird of very high breed, and I have great hopes of him; but unless something can be done I fear very soon he will not be able to see to feed.

I think it my duty to ask you to warn intending exhibitors of poultry through the medium of your valuable Journal; also to apprise judges at shows, that certain notable exhibitors are base enough to prepare the faces of Spanish by colouring them white, and with stitching fresh combs on cocks, and inserting false tail-feathers to the same. I am prepared to substantiate my statement, some friends having suffered by these acts more than once.—T. B.

[There is nothing you can do without running the risk of injuring the bird's face by causing redness. If there is danger of his eyes being shut up by his face, we advise you to draw down that which threatens most on each side, and to fasten it with adhesive plaster of some sort. After some time it may be removed, and it will be effectual. When removed, it must be done by soaking—there must be no force used.]

REMINISCENCES OF A GAMEKEEPER.

(Continued from page 408.)

IT was said, and I believe with perfect truth, that he never undressed. He lived in a place half barn, half wood-house, with no window, but one made of laths, and sufficiently high to be used for ventilation without exposing the inmates to draught. His apartment was rather spacious than otherwise, having an open fireplace at one end, and a couch of straw at the other. It was not his habit to sell much of his game. I believe never, except when he stood in need of some article of dress, or when his supply of tobacco was exhausted. His landlady lighted his fire in his absence, and on his return his game, always Hare or Rabbit, was skinned, cut into joints, and cooked. Then master and dogs dined together, and the discipline observed here was just as strict as when hunting. A good study for Landseer to look through that literally latticed window. The scene lighted by the fire only. A thin worn man eating from a tin vessel constantly replenished from the pot that hangs over the fire, and surrounded by five lurcher dogs, each waiting his turn quietly, and when the meal is over all curling up in the straw for their rest. Tomline was a day poacher. These two were specimens of many of the same class, fostered by a large extent of common land. They are mostly stout fellows, and walk about with their hands in their pockets. They never work, and there are few things in moderation that the long velvet coat would not hold or cover. I must ask pardon for this long digression, but I have a weakness for the heath country, where I began my career, and have dwelt upon it.

It was after I had lived a year or two with my young master, that late in the season we drove out a large covey of birds. My master had been shooting very badly all the morning, and I was anxious to show him sport. But in November, the birds, so far as cunning and wildness are concerned, are all old ones. The unaccustomed eye soon loses sight of them in a long flight, and the practised has difficulty in following them. It is a fine study for those who wish to find out the invisible colours. The brown of the fading heath, and the back of a Partridge are the same colour. But it is not only difficult to mark birds for that reason, but there is another—and that is, they get out of sight without settling in the heath. When they have flown over the highest part of the waste or common, they will skim without moving their wings for 200 yards so low as nearly to touch the tops of the heather. They are seeking where to alight, and having pitched on an open space, a ride or footpath, they set off running directly.

I had marked the birds I thought to an inch, and told my

master so. I led to the spot, but the dogs touched on nothing, and a man turf cutting said no birds had settled there. My master said he did not believe there were; and I said I was sure there were. He said many sharp things, and in very few minutes it was settled I should leave him. I would have sworn the birds passed the spot where we were, and I walked out in a straight line. The dogs followed, and within 300 yards one was standing, the other backing. "Look, sir," said I triumphantly. Had he answered cheerfully, I should have passed my life in his service; but instead of that he walked silently and moodily to the dogs. The birds all got up singly, and he killed them all. I knew that he was pleased, but he would not show it; the fact was, he knew he was wrong. It was the last time I went out with him.

My next place was with a man who had made an immense fortune, and who thought sporting part of a gentleman's life. I was recommended to him, and waited on him at his seat. I had never seen anything so splendid; he was proud of his wealth, and did not hesitate to spend large sums on anything that was seen, and that spoke of his riches; but all that was out of sight paid for it. He was a tall thin man with heavy brows, and whether standing or sitting his eyes were always on you while he was speaking, and his hands in his pockets toyed with his dear money.

"So, you are the keeper! it appears to me the expense of such a man as you are is enormous. What can you do to earn the money you cost? What are your duties?"

I explained as briefly as I could, but he soon stopped me. "You misunderstand me," said he, "you are getting deeper into expenses, and I am anxious to lessen them. Game is saleable, is it not? Well, then, will the Pheasants when killed make as much as they have cost?" I told him not more than half. I believe he would have given me up at once, had not his lady entered the room and told him these expenses were necessary. I had such a lecture after he had engaged me. He was not sure he had done aright in engaging such a man as I was, he thought a cheaper man would spend less money; and then did I find my own guns, dogs, and powder and shot? What guarantee could I give that after all this outlay there should be plenty of game? Would it be for this year only, or would it be annual? He would not have new things, fools had guns made, and they bred dogs; but sharper fellows with money in their pockets bought them, and so would he. I ventured to say something about a gentleman. This roused my master. "Don't talk to me, about your gentlemen, I am one. What makes one? But, mind, I won't be treated as one, as you understand it. You will persuade yourself you don't treat me well unless you rob me. Now, look here! the man I bought this place of could go back from father to son 300 years in possession. By dint of being treated as gentlemen, they became servants. I am a gentleman, and will be one in everything but spending money." I was about to speak, when he said, "Nay, nay, hold your tongue, I must have my man of business here."

I liked the hearty country and master better than the trader.

THE NEW AILANTUS SILKWORM.

MANY of our readers may be aware that there has recently been introduced to France a new species of silkworm, which promises to rival, if not supersede, that which has been so long the sole produce of all the silk of commerce. Unlike the old species, which is known to be of delicate and tender constitution, and has of late been subject to a disease which has produced great mortality in the silk-producing districts, the Ailantus worm is said to be very much more hardy and more easy of cultivation. Some months ago we had numerous inquiries about this new entomological introduction, and several of our readers were successful in becoming possessed of some of the eggs, but until now we have been totally ignorant of the result of any experiment that has been made in rearing the worms. It is to Lady Dorothy Neville, of Dangstein, that the great merit is due for being the first to make known the perfect success of this hardy species of silkworm in this country. From this, the first attempt of Lady Dorothy's, we entertain high hopes that this will become not only a pleasing but a profitable pursuit.

Experience will, doubtless, bring out many points in the management which have yet to be discovered; but there can be little doubt that from the following communication of Lady Dorothy's there is great encouragement to persevere in the work.

"I am very much pleased with my worm success, and I have

no hesitation in saying the worms might be hatched and brought up to their end by the commonest persons, and without the slightest care after they are placed on the leaves.

"We made a mistake in having standard Ailantus trees growing too far from each other. The poor worms descended the stems in order to find food, and perished on the ground; whereas, were the trees planted like our copses, the worms could go from one to another without risk. I am certain that, in consequence of the little food (for we had to put them on Cabbages which they ate very little of) they spun prematurely, and thus their cocoons are not so big as under favourable circumstances they would have been. I send you two as specimens. Next year I shall (D.V.) set about this new experiment in earnest. The worms themselves are most beautiful; very like the Sphinx (*Bombyx*) *ligustri*, of a bright emerald green with turquoise blue spikes."

We shall be most happy to receive any further information on this important subject; and we and the public are certainly much indebted to Lady Dorothy Neville for the disinterested publicity she has given to her experiment, which will serve both as information and a stimulus to others to prosecute what may yet prove to be an important branch of industry. These insects are perfectly hardy, and have only to be placed on the trees where they take care of themselves. Birds do not appear to touch them.

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 412.)

5.—THE SNOW BUNTING (*Emberiza nivalis*).

French, Ortolan aëige.

German, Schneeammer.

THE Snow Bunting or Snowflake is only a winter visitant to this country, and I am not aware that it has ever been known to breed in England, though perhaps it may in the north of Scotland. The change of plumage incident to age and sex has given rise to various names, as Tawny and Mountain Bunting, and from the length of the hind claw it has sometimes been called Snow Lark. It is, however, a true Bunting, as may be seen by the formation of the beak and the palatal knob; and though they will eat seeds and corn, yet like the other species of the Bunting tribe prefer insects.

Bechstein well describes their general plumage—"The head, neck, and whole of the under parts of the body are white, the head occasionally sprinkled with some yellowish-brown colour; the upper and lower back, the shoulders, and the tail-covert are black, bordered, the black feathers with white, the shoulder feathers and the larger tail-coverts with liver colour, so that the black on each of the back and shoulder-feathers appears triangular; the primary wing-feathers or flight half white, the tips being black, the secondaries white, the first and second having a small black streak at the point, and the last three black with reddish-brown borders; the primary covert-feathers black, the others white, except those that overlay the three black wing-feathers, which like those are black and edged with reddish-brown. The tail is forked, the three outer feathers of which are white with a black stripe on the outer vane, the next black being only white at the base, the two centre black edged with grey or reddish-white.

"The female is a little smaller, the head and upper neck white mixed with yellowish-brown, and across the white breast runs a broken band of the same coloured spots."

My bird was caught near Canterbury. It was about the size of a Yellowhammer, the colour being much like that of the common Bunting, but being much intermixed with white. I never heard it sing, and believe it to have been a hen. A correspondent in a contemporary writing from Edinburgh says—"I had a pair of Snow Buntings which I kept in my bedroom, as they disturbed the other birds at night. In the daytime they sat very quiet in a dark corner of the cage; at night they became all activity, fed, played with each other, and sung till past midnight. Their song was a low, sweet, prolonged cry or chime, as if talking to each other. I used to lie awake for hours and listen to them. A pale light from the moon shining through the window-blind seemed to please them greatly."

Bechstein also notices their nocturnal habits. He says, "It is an unquiet bird, and if kept in a room also hops about at night; it sings in the same manner as the Yellowhammer, but faster, and runs fast along the ground like the Lark; and

though it sometimes settles in trees, the earth seems its more natural resting-place. He has a pleasing but short song, and in the aviary sings the whole spring and summer through: this song appears, while he records, to be composed of some lark-like notes. When in full song, however, he pours forth many higher, fuller, and sharp-ringing cadences, and falls then generally into a soft-cricken cry in piano." He further says, "Their call is very clear and loud like the whistle of a man's voice, and sounds like *Fid, fid, and girraha, gack.*"

They seem to arrive in England in September, and leave again in April, and though common in some parts of Scotland during winter, are rarely met with in the South of England in any great numbers.—B. P. BRENT.

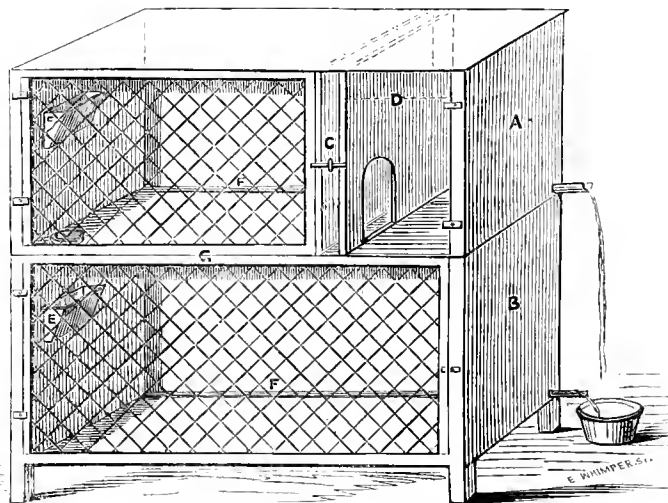
(To be continued.)

THE RABBIT (*LEPUS CUNICULUS*): ITS HISTORY, VARIETIES, AND MANAGEMENT. (Continued from page 330.)

HUTCHES.

The hutches may be constructed either as fixtures or moveable. I would recommend moveable hutches constructed in stacks of two, three, or four high. They may be constructed single, but alike externally to form stacks when placed on each other, which will give a uniform and neat appearance.

They may be made according to the taste and means of the fancier, and arranged, as to height, according to the size of the building. Each hutch should not be less than from 20 inches to 24 inches from front to back, 3 feet 6 inches long, and 16 inches high inside.



- A. Perspective view of doe's hutch.
- B. Ditto of buck's hutch.
- C. Sliding division to doe's hutch.
- D. Door to nest-box.

- E. Hay racks.
- F. Urine conductor.
- G. Wire doors.

The doe's hutch must have a partition about 12 inches from one end, and a hole must be cut at the extremity nearest the front about 1½ inch from the bottom, more than sufficiently large for the Rabbit to pass through. The edges of the hole should be bound with tin or zinc to prevent the Rabbits gnawing them; and if a small door is made to close the hole it will be as well, as the Rabbit can be shut in on one side while the other is being cleaned out. This partition should be moveable, as the object of this is to form a snug corner in which the doe may make her nest, and when the young ones are three weeks or a month old it can be withdrawn, and thus afford a greater space for their accommodation and gambols.

The front of the doe's hutch should be in two parts, one with a close wooden door 12 inches wide corresponding with the division, and the other a wire-framed door as shown in the woodcut; or, which I think is preferable, straight wires, as the Rabbit is seen to more advantage through them. These

doors should be fixed on hinges or pivots, and fastened with buttons, or any other fastening the fancier may think fit. The brass window-sash fastener answers very well. There are many other designs, more or less expensive, but the common button answers every purpose. The advantage of having the whole front in doors is the facility for catching the Rabbits, and also for cleaning out the hutches.

The floors should be made of one-inch boarding well glued together to prevent leakage, and with an inclination to the back of about 1½ inch, from front to back, to allow of all moisture being carried off by a pipe grooved out at the back of the hutch, as shown by F in the diagram; or if not a pipe, the floor should extend 1½ inch beyond the back of the hutch to prevent the urine running down the back.

The buck's hutch should be made without a partition, and the whole front in one wire door. They need not be so long as the doe's hutch, 2 feet 6 inches to 3 feet is sufficiently long. Each hutch may be fitted with a rack for hay, &c., as seen at E in the diagram.

The troughs may be constructed the whole length of the wire door of the doe's hutch, and fastened to it, or made to fix under the door; but a very simple and good trough for single Rabbits is an ordinary spittoon, which is wider at the bottom than at the top, and the Rabbits cannot scratch out and waste their food; but for a doe with young ones it would not answer.

As to the materials for constructing hutches, yellow or spruce deals are the best. The fronts can be made of the same material, or if the fancier is desirous of something handsomer, then come the mahogany fronts, tinned wire, ivory, or brass fastenings, &c.

M. Didicux, speaking of economical hutches, states as follows:—"I managed by chance to obtain a sight of a large Rabbit establishment near the Barrière du Trône, in Paris. It is a large court surrounded with walls, transformed into an open warren. Each hutch is nothing else than an old barrel. There were at least 350. One an old grocer's cask, another a spirit cask, and they had not cost on an average more than two francs and a half each. These hutches were thus arranged: Suppose an old barrel with its bung-hole and two heads, one of the heads removed, and with it a floor made. This barrel is laid down on one of its sides, the bung-hole being underneath. The planks of the removed head are fixed at about a third of the lower part, and about half way from the entry. A trough made of wood is fastened to the sides of the barrel a few inches above the floor. The door is formed of a wooden hoop, and closed with bars of wood an inch apart. These bars would be liable to be gnawed by the Rabbits, but they never touch them if you take care to rub them once or twice with the fresh bark of colocynth. The bitterness of the bark of this fruit is offensive to the Rabbits. This door is fastened to the bottom of the barrel with old leather hinges, and the door is kept closed by means of a strap and buckle. A ring nail serves to hang the rack inside the barrel.

"Thus arranged, the barrels are placed on stocks to raise them above the ground, are placed side by side, and facing the east. They are furnished with a gutter to receive the urine descending through the bung-holes. This gutter conveys the liquids into a pail. You may place the barrels one over the other, so that the bung-hole should be over the gutter between the under-barrels. The empty space under the floor, and the floor itself receive the dejections, which are removed by means of a hook or hoe. The Rabbits have this floor for their feeding and exercise ground, and the empty space at the back of the barrel for sleep, and the does can litter there in safety.

"As these hutches are moveable they can be placed under sheds or in stables during the winter."

From the above description you will observe that it is not absolutely necessary to incur a great expense in constructing hutches, but at the same time I would always advise having them properly made. The first expense is the least, and the health of the Rabbits greatly depends on having a comfortable and clean abode.—R. S. S.

(To be continued.)

A PLEA FOR SPARROWS.

YOUR correspondent, "X. Y.," in his vehemence against the poor Sparrows, deals a little too largely in mere negative argument, which seldom proves anything. "They do not consume caterpillars, &c.," because he has often had trees in his garden covered with them, though numbers of Sparrows were about. I may as well say my stacks and farmyard swarm with mice, and yet I have several cats: *ergo* cats certainly do not eat mice. Can "X. Y." prove that no insects are taken, because he sees a great many on his trees?

That farmers and gardeners generally, who see the harm the Sparrows do at certain times, and do not trouble themselves to look a little further, and acquaint themselves with their nature and habits, should agree in denouncing them as vermin, is hardly to be wondered at; but it does not prove that they are correct in their notions. Nor does it follow because "X. Y." does not know a single case where a farmer or market-gardener wishes to preserve them, that nobody else does. But be it so, many things besides Sparrows suffer from old prejudices, which have no foundation in truth. The common snake, the toad, the hedgehog, &c., are commonly and wantonly destroyed, though every well-informed person knows them to be harmless. That Sparrows do harm in eating corn, &c., no one, of course, denies; the question is, Do they do most harm or good? That they bring up their young largely on caterpillars when they are at hand, and that myriads are thus destroyed every season, is, I believe, a fact too well known to be set aside by a mere *ipse dixit* to the contrary. There are those who have taken the trouble to watch for hours and count the numbers which have thus been taken to a single nest, and if one such fact can be established, it proves far more than the co-existence of caterpillars and Sparrows in the same garden can disprove.

At all events, if "X. Y." means to convince people, he must have something better to advance than negative proofs, which can at any time be made to support the greatest absurdities.—JUSTITIA.

TAKING HONEY FROM STUPIFIED BEES.

I PURPOSE taking honey from my bees, which are strong, by means of Messrs. G. Neighbour & Son's prepared fungus, placed in his fumigator fixed to bellows, and I am not sure how much it requires to stupefy without killing them. Could you tell me about how many puffs of smoke it is safe to blow into the hive? I never took honey in this way before, and I should be obliged if you would tell me this, and also whether it is best to rob the honey from the sides or centre of the hives.—L. A. G.

[If you attempt fumigation you must smoke the bees until they are quiet, and run the risk of some portion of them perishing from an overdose. Bees that have once been stupefied in this manner seldom thrive afterwards, receiving, as we believe, permanent injury from the operation. We should, therefore, recommend you to eschew fumigation altogether, and follow the plan described in pages 45 and 46 of "Bee-keeping for the Many." When you "take" any of your hives we should advise you to make a clean sweep of it, and add the inhabitants to an adjoining stock. By robbing them of side-combs (which alone must be meddled with under any circumstances) you would inflict so great an injury as to render their surviving the winter very problematical. A moderate pruning may be allowed if the bees are to reap a second honey harvest on the moors, but not otherwise.]

PRODUCTION OF DRONE EGGS.

I HAVE to thank "B." for the communication on this subject which appeared in THE JOURNAL OF HORTICULTURE of the 13th inst., and in which he refers to a passage, in page 44 of Dr. Bevan's "Honey Bee." I must confess to some doubts of Huber's theory as to the effects of retarded impregnation, and that I am more disposed to attribute the phenomenon of drone-breeding queens to true parthenogenesis. It must be remembered that Huber had no idea that a virgin queen might be capable of laying eggs which would produce drones, and that he might reasonably, although erroneously, infer that a retarded impregnation had taken place when he found drone eggs laid by what might possibly have been a virgin queen. It is, however, nothing unusual to find a young queen laying a few drone eggs in worker-cells as if by mistake; but in the instance which I have recorded

the number was so great as to be remarkable. Should anything further occur to throw light on this obscure subject, it will not be lost sight of by—A DEVONSHIRE BEE-KEEPER.

LIGURIAN BEES IN SCOTLAND.

THE following paragraph from *The Berwick Advertiser* proves that Mr. Swan, to whom I sent a queen last year, has had every reason to be satisfied with the superiority of Ligurian bees.—A DEVONSHIRE BEE-KEEPER.

"DUNSE.—*Bee-swarmling Extraordinary.*—Some time ago we announced the introduction of the "Italian Alp or Ligurian Bee," by Mr. J. Swan, Dunse, and then stated that the hive first introduced had swarmed twice. A few days after that announcement it swarmed a third time. A virgin hive has been procured from the first swarm, and what is most extraordinary is, that the second swarm, which was hived on the 12th of June, has also produced two very large swarms—an occurrence, we believe, altogether without a precedent in Scottish bee-keeping—so that no fewer than six fine swarms of this new variety of bee have been produced from one hive during the present summer. The last swarm, although a second, weighed fully 4 lbs. of bees, which would thus amount to about 20,000 workers to the hive. The above speaks well as to the prolificness of the Ligurian bees, and we shall be glad to be able to inform our bee-keeping readers, at the end of the season, of their superior honey-gathering qualities also."

HOW I BECAME AN OXFORDSHIRE BEE-KEEPER.

(Continued from page 412.)

"But when thou seest a swarming cloud arise,
That sweeps aloft, and darkens all the skies,"

I HAVE found, good Master Virgil, in those instances, that the queen is rarely there, and without mixing

"With tinkling brass the cymbal's droning sound,"

or any of those other "alluring savours" you so melliduously recommend, the "unreconciled deserters" will, in about an hour's time, return of their own accord, and wait a day or so longer till the queen is ready to go with them. Before I knew so much about bees as I do now, I remember I used to be in a great strait when a swarm flew high, and settled on the boughs of the beech-tree tops which overshadow my hives; but after having made preparations three or four times with ladders, linen-lines, saw, &c., intent on capture—worthy a scaling-party in a forlorn hope—I found, by the time the preparations were completed, that the besieged were retreating back to their hive. So now, in their high and flighty humours, I merely take the precaution to keep my eye upon them for an hour or so, when, if they are settled and remain quiet and compact, that is quite another view of the case, and the scaling apparatus would be put in use in earnest. But their several castle buildings that way have never favoured me with any result, save in their returning to their hive. When they hover low is the true sign, and a row of peas or a dwarf fruit tree becomes irresistible for the queen in her first flight to rest upon with her faithful followers, than which—

"—not Egypt, India, Media, more
With servile awe their idol king adore."

From ten o'clock till two is the likeliest time for a swarm to come off, though that period does not serve to pin one's faith to; for from eight A.M. to five P.M., my bees have called me forth on those occasions. Premonitory, in the evening, I listen with my ear close to the hive or hives suspected to swarm, when, if the queens are trumpeting, be watchful next day, or if a previously busy hive show sudden inactivity, look out. Have a hive ready with every projecting spray clipped close away from its inside; for any, the least protruding piece of straw there, the bees will cut away with their mandibles, and it gives them incalculable labour to do so. Introduce the crossed sticks as comb-supports, and if the hive is brushed out clean with a hard brush, it is all the preparation it will want; for the old-fashioned sweet applications of our grandmothers are of no use, they only give the bees a great deal of trouble to clean them off again. If people are old and obstinate, and will apply them, there is no remedy. Some ten years ago I was in London, when I expected my first bees' first swarm. I left all the apparatus ready, and word for the dame who kept bees in this place, and she promised to attend

to the swarming of mine during my absence, to be sure not to apply any internal applications, but in vain. I forget how many nostrums she concocted, and slushed into the hive with a bunch of nettles or something; but apply the "dressings" she would, or not hive the bees at all. In addition to the hive have a tablecloth, a goose's wing, and four pieces of broken bricks; and, of course, the bee-stand is ready, as I, or somebody else, have already advised upon. Do not "tang" the bees when swarming, as its only use would be to excite the queen to prolong her first flight, and, if she found herself strong upon the wing, to continue it much farther than would be agreeable to the pursuer.

When my bees swarm I remain quietly amongst them, and I often think they favour me for so doing by settling near my immediate presence; but be that as it may, two swarms apparently returned this season to the garden, when I appeared there to the tune of what I call my bee voice, which I always use when I go near them—viz., "boys, boys, boys!" pitched to a high note, in the key of two flats and one sharp. In the first instance—and the coincidences are curious—when I arrived the swarm was inclining to a neighbour's garden, I called, and they came. Secondly, it was on the day of the Archdeacon's visitation, and my friend, Mr. Morris, P.C., attendance was required at the church. In the meantime a message arrived to say his "bees were swarming," and before I could hive them, and return, my own were doing the same, in a strong east wind, so much appreciated by Mr. Kingsley (?) and they were fast veering off into Blenheim Park as I entered the garden, when I sang out, "boys, boys, boys!" which seemed immediately to alter their intention; for they returned in the face of the wind and settled in the garden. Again, (poor old Brotherton! he will never march again—the bees will never molest him, or will he ever more call me to defend him from their attacks!) My new odd man when he is at work in their vicinity, and he braves them well, for a sting or two is of no consequence, I am often obliged to run to relieve some from the hair of his head, and sometimes to relieve him from their presence, though my bee voice rarely fails to appease their anger; and I never knew it fail to keep them from becoming peevish when I introduce strangers amongst them to explain my management, and those times are neither few nor far between.

The manner of hiving swarms is so generally known, that it seems needless to recur to it: still I will do so in passing, for what I write is intended as a guide chiefly to the inexperienced, and for young bee-keepers who wish only to undertake the management of a few hives, as well as merely an unfolding of the subject matter of how I do it. So, the swarm having settled, put on the bee-dress and gloves, and spread the cloth upon the ground, with a corner pointing under the bees. Lay three pieces of brick upon the cloth angularwise, and fit the hive upon them; reverse the hive, and hold it under the bees, or as near to them as possible, and if the bough is pliant, shake the bees into it; if not pliant, brush the bees tenderly into the hive with the wing, every one from the bough or tree-stock, if possible, to make sure of not leaving the queen behind; then reverse the hive over the cloth, and sit it upon the bricks. Bring three ends of the cloth on to the top of the hive, and keep them there with a piece of brick; and should the sun be shining hot, place a rhubarb-leaf or two or a green bough over all, and it will be pleasing to watch the march of the stragglers along that extended corner of the cloth, which was placed beneath them, up into the hive, when, if they all go, and remain quietly, it would be as well to take and place them on their stand, if it is near, and at once accustom them to their new domicile; otherwise, the evening is the best time to do so. Then take the bee-board, place the hive gently upon it, bear it quietly to the stand, and place the pan, or whatever shelter you may have decided upon, over it. Take away the cloth and bricks, fork out the footmarks from the soil, and the act is completed. Watch the bees next day, as they might just possibly not become reconciled to their new home, and fly off again. I never had a flitting of this sort; but I have read of such an untoward event, which was probably in consequence of some nasty filthy "dressing."—UPWARDS AND ONWARDS.

(To be continued.)

CURE FOR THE STING OF A WASP.

You will be conferring a benefit on your readers if you will inform them that the best remedy for the sting of wasps is a

little stone blue (such as is used in washing linen) moistened sufficiently to rub on the part stung; it gives instant relief, and the wound will only feel a little stiff for twenty minutes or half an hour. A small piece of blue might be carried in the pocket ready for use now wasps are so numerous.—A. RICHARDSON.

MAKING CAYENNE PEPPER.

PROCURE an ounce of the small long-pod West India chilies. They should be a half or three-quarters of an inch long. They require no drying (generally), and have only to be passed, pods and seeds together, twice through a small steel mill, set so as to grind it rather fine, and you have near an ounce of the finest, strongest, and most aromatic cayenne pepper that can be produced, and more than any two lovers of curry can consume in a twelvemonth. No sifting is required, only keep it in a dry, well-stopped bottle. If you pass a little whole rice through your mill before and after grinding the chilies neither the pepper nor the mill will be the worse. Most lovers of cayenne do not like it in fine powder.

SOLUBLE CAYENNE.—Take an ounce of the ground chilies as in the last receipt, put it in a well-corked bottle with one ounce of spirits of wine (rectified), and one ounce of water. Let the bottle stand ten or twelve days in a warm place, and shake it every day. Now strain it through fine muslin into a clean white jelly-pot with a cover, and add two ounces of table salt, placing the jar on the hob or in a gentle oven till as much of the salt has dissolved as the fluid can take up; ten minutes should do it. Then remove and pour the clear liquid into a dish or plate, and place it in the draught of a window that the liquid may all evaporate, and you will have nothing left but the essence of cayenne combined with the crystal of salt. It is very strong, and, of course, perfectly soluble.—B. W.

OUR LETTER BOX.

CHICKENS PLUCKING EACH OTHER (J. C.).—Whenever fowls eat each other's feathers it is from disease, or a deranged state of the body. It is at the moulting time, and for the sake of the bleeding stump of the feather. It is always imagined that it proceeds from feeding with meat. They learn it one from the other, and for that reason the pecker and the pecked should both be removed at once. As soon as the raw spot is seen all will peck it, and when they have once tasted they will continue to eat. Give nightly doses of castor oil; feed sparingly on oatmeal; and give lettuce to eat. Remove all that thus pluck off the feathers.

CHINCHILLA AND HIMALAYAN RABBITS (X. T. P.).—State what you have to sell to Mr. Jackson, 3, Thistle Grove, West Brompton, or to Mr. Baily, 113, Mount Street, Grosvenor Square.

GOLD FISH IN TANK (Delta).—We have no reason for believing that Gold Fish in your Herefordshire garden tank would be killed in winter. We knew a tank in Hampshire where they survived—care being taken to break the ice daily when the surface was frozen. They were gone before last winter. We shall be obliged by further information on this subject.

VOLUNTARY CROSS-BREEDING.—"I shall be obliged by any of the readers of THE JOURNAL OF HORTICULTURE telling me of instances they have known of cock and hen birds—Goldfinches, for instance, loose in a room or aviary pairing with birds of a different kind, as Canaries, while there were mates of their own sort also in the room. Any statements they could afford me of the numbers and kinds of birds that they have found to agree well together, and to succeed as to building nests and rearing young in a room or aviary, I should feel very much obliged for, as I am very anxious to collect as many proved facts as I can to compare with my own experience.—E. A. M."

RED MITES IN CANARIES (L.).—These may be got rid of by means of flowers of sulphur. Whenever the cracks or crevices of the cage show a whitish, speckled or mouldy appearance, these little pests may be expected to harbour. Open these cracks or joints with a chisel or screwdriver, so as to be enabled to insert a feather or camel's-hair brush, and by this means well oil the opening, and then fill it with the sulphur, a little of which may be dusted among the birds' feathers, being careful not to let it get into the eyes.—B. P. BRENT.

LONDON MARKETS.—AUGUST 26.

POULTRY.

The supply of good Grouse is small, but there are a great many inferior, and, consequently, unsaleable birds. There has seldom been less demand for poultry of every description than during the past week.

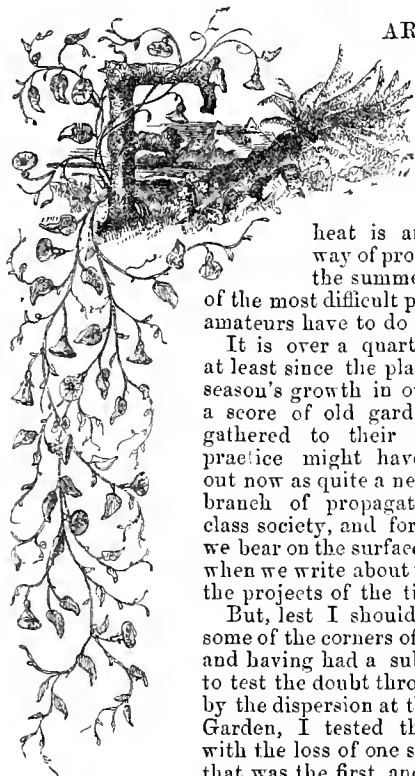
	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls	3 0	to 3 6	Leverets	0 0	to 0 0
Smaller Fowls	2 6	" 3 0	Grouse	1 9	" 2 3
Chickens	1 9	" 2 0	Pigeons	0 8	" 0 9
Ducks	2 0	" 2 3	Rabbits	1 3	" 1 4
Geese	5 0	" 5 6	Wild	0 8	" 0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	SEPTEMBER 3-9, 1861.	WEATHER NEAR LONDON IN 1860.					Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.							
				deg. deg.			m. h.	m. h.	m. f.			m. s.	
3	Tu	Chelone.	30.052-30.631	71-44	N.	—	17 af 5	41 af 6	20 3	28	0 50	246	
4	W	Liatrix.	30.157-30.135	69-38	N.W.	—	19 5	39 6	sets	1	1 9	247	
5	Th	Eupatorium sessilifolium.	30.199-30.175	70-33	W.	—	21 5	37 6	19 a 6	2	1 29	248	
6	F	Lobelia.	30.348-30.301	63-37	N.E.	—	22 5	34 6	39 6	2	1 49	249	
7	S	Boltonia asteroides.	30.308-30.126	68-40	N.E.	—	24 5	32 6	0 7	3	2 9	250	
8	Sun	15 SUNDAY AFTER TRINITY.	30.012-29.977	72-47	N.E.	-01	25 5	30 6	28 7	4	2 29	251	
9	M	Helianthus divaricatus.	30.084-30.052	60-31	N.E.	—	27 5	28 6	1 8	5	2 49	252	

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 69.8° and 47.2° respectively. The greatest heat, 83°, occurred on the 5th in 1848; and the lowest cold, 28°, on the 7th in 1855. During the period 136 days were fine, and on 102 rain fell.

REVIVAL OF LAYERING CUTTINGS.



AR more easy and with much better results than some of the propagators have met with in their closest houses and greatest

heat is an old neglected way of propagating, during the summer months, some of the most difficult plants with which amateurs have to do in the open air.

It is over a quarter of a century at least since the plan made the last season's growth in our books; and if a score of old gardeners had been gathered to their forefathers, the practice might have been brought out now as quite a new discovery in a branch of propagation for middle-class society, and for all those whom we bear on the surface of our thoughts when we write about the practice and the projects of the times we live in.

But, lest I should have forgotten some of the corners of the proceeding, and having had a subject well fitted to test the doubt thrown on my hands by the dispersion at the Experimental Garden, I tested the practice, and with the loss of one subject only, and that was the first, and failed for want of my hand being in practice.

People who were at the Rose Show at South Kensington, and have seen the splendid row (all round at intervals) of *Centaurea candidissima* with which the Messrs. Veitch, of the Exotic, furnished the middle stand in the Society's conservatory, will never forget the sight, neither shall I; and there was another row round the outside of that grand circle as easily and as cleverly done as the other was difficult and tedious—I mean the couple of hundred of large No. 48-pots brimful of *Lobelia speciosa*, and the pots placed so close together as to make the blue edging an unbroken circle or edging all round. Now, that is what thousands would be glad to have by them in the country to be ready for some upshot or another—as a wedding, a Prince's visit, a fancy fair for some charity, a birthday festival, and such-like events, when extras come in as close and tidy as did that singularly beautiful edging on the occasion of the July Rose Show.

But that *Centaurea candidissima* pleased me the most, and because that then I was in the dumps at losing one plant of it by the experiment on the ancient way of propagating difficult things out of doors; and how could I

know but that the whole might follow suit and leave my experiment on the shelf for another quarter of a century? But I lost no more of them. The plant of *Centaurea candidissima* was sent three or four years back to the Experimental by Mr. Salter, of the Versailles Nursery. It was a favourite in the conservatory there in the height of summer and in the depth of winter; and for a drawing-room, or sitting-room, or anywhere about a house, there is not a cleaner-looking plant in the whole vegetable kingdom. If we could get it a yard high by the thousand, instead of *Scrophularia nodosa*, you would see the effect of cutting short off the heavy burden of varied green from the light airiness of a grand ribbon-border in front of a shrubbery, or along a carriage drive out of some plantations "going up to the house."

Now, it was this very plant for that one purpose that I was anxious to do on the old plan, so as that anybody after once obtaining a plant of it might be able to make his or her own stock of plants of it.

The first of my proceedings early last May was to cut out the heart-bud of that *Centaurea candidissima*, both to keep it from flowering and to cause it to make side shoots. It did make side shoots in earnest last June. It was planted out of doors and out of pot in a south border under a south wall, in rich earth, by the middle of May, for it requires exactly the same kind of treatment in summer and winter as a pot Tom Thumb Geranium, the same soil also, and the same quantity of water every day in the year. Tom is fidgety about water in winter, so is *candidissima*. Tom likes ample drainage and air from below for his roots, so does the other; and both agree as to soil in pots, and both enjoy the luxury of planting out of pots and out of doors for a whole summer. Tom is easy to increase, but this *Centaurea* is uncommonly difficult to multiply by common modes. You might almost think the plant had common sense, and made bad use of it, by seeming to despise being cut or done for in those modes, save by a first-class gardener, or second-class propagator in a nursery. But the old way brings it to the test, it roots in that way just as well in the smallest as in the best and biggest garden in the kingdom.

I allowed the side shoots to attain 6 inches or 7 inches in length, some were longer; then I cut them within one joint of the old stem of the plant, and cut off all the leaves except the upper pair, and those I shortened as they used to do all cutting-leaves when I was young; I smoothed under the bottom joint just as for a cutting, and then I made a carnation-like layer of the very top of the shoot—all setting out on a stool, recollect. I then planted the bottom of the shoot like a cutting, but in a slanting way, so as not to be too deep; then I put down the layer just as if it were a layer of a growing branch, and there was only that one that missed taking root.

The plan, I would guarantee, is also applicable to five hundred kinds of plants, from the old Clove up to the new *Mutisia decurrens*. You might practise your hand, indeed, on the old Clove itself. Take the longest shoots of it from your oldest plants, I mean those that are now too old to be kept longer; strip off all the leaves as I did,

except the top pair and the centre ones of the point; guess which would be the underside of that branch naturally, and make the layer of it by cutting the tongue on the underside, and right through a principal joint. You might plant them upright in a shallow trench, but many kinds would do better on the slant as I did it. Or if you never did such a thing as lay a Carnation, and can hardly make out my meaning, just get half a dozen of soft shoots out of a Black Currant bush. Let them be a foot long, more or less will do. Strip off all the leaves except the top pair as before, and pick out all the buds below where you make the tongue, else the bottom eyes will be sure to be up and make roots before your layer: but then you are learning the practice, and not wishing for more Black Currants.

But suppose you were to try a Rose that way. If you were not afraid of the prickles, it is ten to one if the whole family of them would not come surer that way than by the present doings; for in my young days they were all layered that way, only that the bottom of the shoots was still left growing on the branch—and that would seem a small matter if you come to think of it in the right light. They say the rising sap never makes roots; it is the down-going sap from which the secretions which make the roots come. Then, if a shoot can be kept fresh enough on pure water or impure moisture in the ground for a certain length of time, as we who dig the earth well know to be the case with very many shoots, what is to hinder the return of the sap from causing roots to come that way even faster than if the shoot was still growing on the bush? for very likely other shoots, or parts of the plants, might be so impatient for more than a share as not to allow the sap of that branch time enough to cause a single root to come. But that has to be proved.

The best Rose nursery in Scotland in those days was Peacock's, in Edinburgh. It was down the Leith Walk; and to my personal knowledge they layered the principal portion of their Roses in the spring. I recollect there was an enormous big Pear tree in one of the Rose quarters, and the branches of that Pear tree swept the ground in a wide circle, and they used to make layers of the last summer's wood of the Pear just as they did their Roses. But Mr. Barnet, who is still in the Regent's Park Botanic, could tell more about it, only I was thinking whether or not it would not be as good now as then to have Apples and Pears on their own roots in some soils.

Then, if Roses will now come from cut shoots as layers, I see no reason why Pears should not do the same, as they certainly did in Peacock's time, without being detached, however, from the parent tree. Indeed, I cannot conceive a reason why all kinds of plants which root from layers in one season should not succeed this way with ordinary care. At all events one of the most difficult of them has done so with me in two months, and with no care whatever save being sprinkled with water of an evening, taking their share of it like more common cuttings and some seedlings which are set down beside them.

In October, when I take them up, I should not be surprised to find the bottom part of each shoot had rooted also; and if so, a new way of striking that Centaurea will have been discovered without trying for it—that is, half-ripened wood to be made cuttings of and planted in the open air after the turn of midsummer: at all events, this will open a new branch of easy propagation to thousands who had never heard of such a thing. I had been talking to them at Kew about it, and could find no one younger than myself who had ever heard of it before; but it was a common practice in earlier days.

SUNK GARDEN AT KEW.

Speaking of Kew reminds me of one of the hundred things I intended to say about it. You have heard, no

doubt, of the immense height of the flagstaff they have put up there this season in the pleasure-ground: if not, you will see it from any part of the grounds; and you ought to go up to it, and hard by you will find a new underground garden for climbers, and for half-hardy trailing and delicate plants, and a tunnel-passage into it without an arch overhead, as in railway tunnels—merely steep green banks right and left of you. It is a plan which many people could imitate in their own gardens, and it is well worthy of a visit to see it as it is. Formerly it was a great gravel-pit, and what they did was to put the sides of the pit all round into ship-shape, and giving them (the sides) a steep slope. The slopes were deeply dug, and very good and very light soil added to them, and their whole surface covered with it. As the slopes are all round the space, some part or other of them faces every point and quarter point in the compass: therefore, there is a suitable aspect for every little morsel of a thing of a plant under the sun. All their Rock Roses are facing the sun, Italian fashion, and so on with all the rest. But it is with the bottom of the slopes that I had most to do, on account of the hardy climbers which they planted there. But the bottom of the slopes is a regular garden of itself, the shape of it is something of the shape of the figure 8, but without the crossing in the middle; but any shape would do. It may be 6 feet, or 8 feet, or more under the surface of the rest of the ground round about it; and if there was a belt of evergreens all round the top of the slopes, that would make it appear still deeper, and be warmer or more sheltered for the things planted along the sloping sides. The bottom was first levelled and a walk made all round it, the bottom of the slope being one side to the walk the whole way, and on the inner side of the walk they put up many iron rods for pillars of hardy climbers, and a chain is festooned from pillar to pillar all the way round, with a large bed inside the climbers where half-hardy plants find a perfect rest "from all the airs the winds can bla."

There I saw the pretty little Mexican evergreen, *Berberis trifoliata*, which was killed to the ground last winter, and now has a shoot hard upon 2 feet in length sprung up from the roots. As *trifoliata* is, generally, a dense very low bush, this might teach some one how to get it a dwarf standard on its own roots, when it would be one of the nicest architectural plants in the order, on account of its very peculiar glaucous aspect. Not far from it was one of *Berberis Fortunei*, also cut to the ground; but both were only planted late last autumn, which accounts for their being so cut there. *Fortunei*, which is six times stronger than *trifoliata*, put up three or four shoots not over 6 inches high.

But, still, I want to keep the reader in mind of the climbers. The best of them then in bloom was *Clematis lanuginosa*—the very finest out-of-door climber in England, unless, indeed, *Lapageria rosea* will be found to do so much better in a half swamp out on a west aspect, or down underground in the bottom of a stone-quarry, or sand or gravel-pit, made and laid out on the plan of this one at Kew. Then, if the Royal Horticultural Society could get us over all the Bomareas we already know to be in feather, the same bed would do for them and *Lapageria*, and *Disa grandiflora*, and all the biggest grandiflora bulbs of the Cape, the magnificent red *Crinum* from the eastern settlement there, hardy as *Gladiolus*, and all *Tritomas*, and with them *Tritonia aurea*, which is a true swamp plant and never gets half enough water in pots. Then it would be just time to send to the arid plains north of Valparaiso, where most beautiful bulbs are half baked in clay and lava-like soil, for the dry slopes of the under-surface, rather than new underground gardening. All that would be necessary to render such a place fit for anything one could suggest is, that there should be no stint of water when it was needed, and no want of drainage from the lowest part of the bottom to dry the place in winter, or keep it from being

flooded. At Kew, the bottom drains itself through the bed of gravel. And, also, a thing of this kind would offer great facility for a large surface of ground to be covered with a comparatively small surface of glass in winter, or canvass, as over the exhibition ground at the Botanical Garden, Regent's Park. D. BEATON.

A CHAPTER ON BEDDING GERANIUMS.

As I may at a future time make some remarks on bedding Geraniums in general, I will merely in the present instance call attention to a few points bearing on their appearance and utility, with a view to enable the inexperienced to select the kinds best adapted for his purpose in bedding. I do so because this is the season for propagating them. As I purpose going more into detail on this matter hereafter, the observations here must necessarily be brief.

In the first place, I may confess that the Geranium is my favourite bedding plant, it being the earliest and latest, and, whether in flower or not, the plant looks well; and if we take the Variegated section into account, a very good feature may be made with Geraniums alone, which will last the season through. It is true that Geraniums require a little more room in winter than Verbenas and some other bedding plants, but not so much trouble nor hotbeds for propagating, &c., are wanted, if all be duly attended to in the preceding autumn. However, it is not necessary to enter into these matters just now, but to make a selection amongst the many varieties of Geraniums offered to us for next year's display; and as names do not always convey a just description, I will only mention a few by way of example to explain my views, dividing them into classes in the following order:—

SILVER-EDGED GERANIUMS.—The varieties here are numerous; but those with scarlet flowers are most esteemed, although those with pink or purple blooms may be useful also; but as the foliage of this class is of more consequence than the flower generally, it is better not to require too much of the flowering part, but endeavour to obtain a good, free-growing variety. If we had a good scarlet with the habit and rapid growth of *Mangles*, we should have an acquisition. At the same time the foliage ought to be of a more clear white, and not that creamy dulness so many have. For upright-growing plants for striped borders, I admire a leaf somewhat crumpled and cuppy; for as they are generally looked at in a horizontal direction, the tips of the leaves are all that are seen, and if they be a clear bright white they approach nearer that standard of perfection which is so much aimed at. The two best varieties I have are *Bijon* and *Shottisham Pet.* The latter certainly not so bright a scarlet flower as *Alma*, *Perfection*, and some others, but a more free grower, and the foliage a more lively white than the majority of Variegated Geraniums, and being formed somewhat cuppy the tips look cheerful and well. I may observe that I do not admire the class of fancy-coloured, variegated-leaved Geraniums, or those having a series of rings or zones in the marking of the leaf. I have not seen one that looks at all clear, excepting now and then a solitary leaf on a plant having twenty others of a dull, confused character. The *Countess of Warwick* is one of this class, and at the distance of a few yards looks dirty and displeasing. On the other hand *Brilliant* has not sufficient white marking; *Mangles*' Variegated will not be discarded yet; but *Flower of the Day* is certainly doomed.

YELLOW-FOLIAGED GERANIUMS.—Great improvement is wanted this way, as I have only four varieties—*Golden Chain*, *Golden Circle*, *Golden Fleece*, and *Golden Vase*. If *Golden Chain* only could be induced to grow as fast as *Tom Thumb*, I would not find fault with its flowers; but it is of slow growth, and, consequently, can only be increased to a moderate extent. *Golden Circle* grows much faster, but in habit is somewhat lanky. *Golden Fleece* is so liable to run into a green state that I hardly know what to say of it, and I have not enough of *Golden Vase* to give an opinion of it. All the tidy plants of *Golden Chain* ought to be taken up and put away in boxes or pots. *Golden Circle* will, however, propagate pretty freely at this time. For edging purposes *Golden Chain* is certainly the best plant we have, and if it would grow a little faster it would be still more useful.

GERANIUMS WITH PLAIN-LEAVES AND PALE OR PINK FLOWERS.—White-flowered Geraniums are capable of much improvement. Most of those we have are on plants with horse-

shoe markings or dull opaque leaves. *Boule de Nieve*, *Virgatum*, and some others are of this kind. In the list of pink, *Christina* is by far the best I have; but if this had a clear green leaf like *Tom Thumb*, it would be much improved. *Princess Alice*, *Lucia rosea*, *Kingsbury Pet.*, and others, must give place to *Christina*, and, as paler varieties, *Lizzie* and *Hendersoni* are good.

GERANIUMS WITH ROSE-COLOURED FLOWERS.—There are some very excellent varieties in this section, which embraces more tints of colour than can well be described. Amongst the tall ones, *Trentham Rose* is good; differing in colour from it is *Rubens*, also good; *Paul Labbe* is as good as either; and *Rose Perfection* also useful. These are all strong growers, with plain leaves or very little markings. *Judy* is more dwarf and much smaller in the truss; and *Cerise Unique* is only useful for its upright growth, its foliage is that mixture of brown, dull red, and dirty green, which give a confused appearance to it. Nevertheless, for a narrow line in a ribbon-border it is better than those I have named above. We want one, however, to supersede it, as its pale flower-stem is no longer a qualification now.

SCARLET GERANIUMS WITH HORSESHOE-MARKED LEAVES.—There is a great number of names in this class, most of the flowers having white eyes. But after a careful survey of those I have and those I have noticed elsewhere, I have come to the conclusion that *Compactum* and *Scarlet Globe* are the best; *Blazer*, *British Flag*, *Cottage Maid*, *Commander-in-Chief*, and others, may be all pretty good; but I think not better than the two first named. Like the class mentioned above, the central marking of the leaf is certainly no qualification. A good, clear, dark marking of horseshoe on a bright green leaf is much better than when more colours are blended together in a confused manner. *Baron Hugel* as a dwarf is useful, but its flowers are dull. A good variety this way is wanting.

SCARLET GERANIUMS WITH PLAIN LEAVES.—Much diversity exists on this head; but as I only detail my own experience and ideas, I unhesitatingly say that I have found none equal to *Tom Thumb* yet, a clear green foliage, good habit, and constitution, a fair truss of a good colour, and a general adaptability to all situations. I like it the best of any I have, but there are certainly some spurious varieties of *Tom Thumb* about, and, possibly, those having the wrong kind may have given the preference to another. *Royal Dwarf* is also good, and *Punch* presents a very large truss with a stronger habit of growth, though in this respect not more so than *Mrs. Mayler*, the most robust one I have. *Tom Thumb*, however, is the one most generally planted, and is not likely to be driven out of cultivation yet.

GERANIUMS OF THE NOSEGAY CLASS.—This desultory section is no great favourite of mine. *Salmon* and scarlet *Nosegays* I shall dispense with after this season; but purple *Nosegay* is useful; and if a more compact habit could be given to it, which, doubtless, will be given to some of its progeny, it will be greatly improved. Some other classes might be added to this in the way of loose, flimsy flowers—*Harkaway* and *Lucidum* to wit; but except for novelty and multiplying names, I cannot see any merit in them.

IVY-LEAVED GERANIUMS.—I only grow two kinds, the crimson-flowered and the white, both of which are excellent for vases or beds on dry ground, and in a general way both useful bedders in dry seasons; but the foliage becomes discoloured late in autumn, more so, perhaps, on the Variegated variety called *Pink Cup* than in either of these. For spreading and covering a bed they are excellent, and a sunny, dry bank is much enlivened by them. Much rain or moisture is their bane.

GERANIUMS OF OTHER VARIETIES.—Under this head may be classed the *Uniques*, *Sweet-scented* varieties, the *Oak-leaved*, and other greenhouse kinds sometimes used in bedding. The *Uniques*, as *Rollison's*, *Gaines'*, and *White Uniques*, look well when in flower, but after once flowering little else but a mass of leaves follow. The *Oak-leaved* section flower more continuously, but have the misfortune to hide their blooms in the foliage. *Moore's Victory*, *Quercifolium*, *Coccineum*, and *Rouge et Noir*, are examples this way. A small-leaved variety called *Prince of Orange* is better than any of them. They are all sweet-scented, but two or three kinds grown only for their scent and foliage are useful, but it is needless mentioning local names. *Shrubland Pet.*, however, ought not to be forgotten as a compact grower, and one not to be despised as a flowerer when on ground not too rich. I have never been able to make anything of *Diadematum rubescens*, except as a solitary plant in a mixed border, where for a time its blooms are showy; but for that continuous flowering which bedding plants are now-a-days required to do, this variety

and its companions must succumb to the Scarlet and other sections previously mentioned.

PROPAGATION OF GERANIUMS IN SUMMER.—Every one has a way of his own which he invariably thinks is the best, and, doubtless, in his particular case is so; but as some have not yet fixed their own particular way, it may be as well to mention the very simple method we adopt here, which is attended with as little trouble as can well be desired, which is this—All the cuttings of Geraniums taken prior to the 10th of September are struck out of doors, and in the full sun, the bed of ordinary garden soil receiving only a top dressing of road sand that has lain some time exposed to the air—in fact, as road sand must of necessity do this, it is ready at all times. I do not like pit sand so well. The cuttings are watered once when they are put in, but get no more, and rarely more than one or two per cent. miss growing. In the first week of October they are taken up and planted thickly into boxes that are made 2 feet long and 1 foot wide, and 3 inches or 4 inches deep. From forty to fifty plants are put into one of these boxes, and being watered at the time of planting and left to drain well before they are set away, they rarely get any more for a long time after, and the boxes being square fit and fill up any required space. Pans may do for those not requiring many, but where several thousand plants are required some economy must be used, as well in space as also in the mode of storing them away.

I have been led into the above, perhaps, by an undue regard for Geraniums as a bedding plant; but I appeal to those having the management of flower gardens, if this class of plants is not the most useful and continuous-flowering soon after planting, presenting at all times a healthy, orderly plant to look upon, whether in flower or not, and many of the family are prettier without flowers. I believe the majority of admirers of flower-gardening coincide with me in placing the Geranium at the head of the class, and nurserymen and florists have not been behind in supplying us with an infinite array of names, some of them, doubtless, of great merit; but I have confined my observations to those grown here (Linton Park), and omitted several that I have not sufficiently tried; but I may hereafter go through them more in detail. In the meantime I should be glad if some one would give us a few particulars of *Tropaeolums*, and explain whether any really good yellow variety having all the qualifications of *T. elegans*, has been introduced; also, if any better than *elegans* is forthcoming. Useful as this class of plants is, there is yet much room for improvement, and those having made any advance that way will do the gardening world good service by publishing it. The sickly leaves on *T. elegans* about August are a defect; and one or two darker kinds have the leaf-stalk too long, almost hiding the flower. The yellows have a different habit altogether; but the whole is evidently only in the transition state, and their progress onward towards perfection will be duly appreciated by the lovers of gardening, and I for one will hail any improvement in the class of plants I called the attention of flower-gardeners to some three or four years ago when a succession of dry seasons threatened to render the *Calceolaria* useless to us. An article on *Tropaeolums* will, therefore, be very acceptable; or if each one knowing of a good variety of that plant were to report upon it, much good would be done, and a general dissemination of the good kinds more likely to take place.—J. ROBSON.

DESTROYING WORMS.

I SAW in your columns recently a method for destroying earth-worms. A gentleman there states that there is no better agent for killing earth-worms than lime water. I can state, on the other hand, that I have tried lime water, and mustard and water also, but they are not equal in effect to corrosive sublimate, which may be procured at the chemists. I mix an ounce with 15 gallons of water, then put it on with a rosed watering-pot; it is quite harmless, it will not injure the foliage of any plant. I have used 7s. worth on my lawn this summer, which has greatly improved it. I have likewise recommended it to several of my friends, who have used it with great success. It is very cheap—6d. per ounce. I dissolve an ounce in boiling water, then mix it with 15 gallons of cold water.—S. E.

[That corrosive sublimate (bichloride of mercury) will destroy worms has long been known, and adopted by some gardeners; but, instead of its being "quite harmless," as stated by our correspondent, it is one of the most deadly of poisons: so deadly

that many gentlemen will not permit it to be used. Poultry and ducks have been killed by eating the worms destroyed by this poison.—EDS. J. OF H.]

THE LITTLE MARKET-GARDENER;

OR,

HOW TO CULTIVATE AN ACRE OF LAND WHEN PROFIT IS THE CHIEF AIM, AND SHOWING HOW A FAMILY MAY BE SUPPORTED AND SOMETHING PUT BY FOR A RAINY DAY.

(Continued from page 117.)

PLANTING CELERY.

As soon as the early Potatoes are ready to take up, lose no time in getting them to market. They will never return so much money as at first. I take up a row and weigh them, and if they will pay about 15s. per rod I take them up and sell them as fast as I can.

As you take them up throw out your Celery-trenches 4 feet from centre to centre, and about two spades deep if the soil will allow of that depth; but if it has a bad subsoil you should not make the trenches so deep, and should make them a little farther apart, so that you may have more soil with which to earth up the plants.

When your trenches are ready apply 1 lb. of bone manure for every yard in length, and about four or five o'clock in the afternoon you may begin and dig it into the trenches as you would farmyard manure, and mind that you plant out the Celery the same night, about 9 inches from plant to plant, and as soon as planted give them a little water, and in watering see that you water the sides of the trench more so than the bottom. I do not care if the roots do not get any water the first night so that the sides of the trenches are well watered up to the top.

TURNIPS AFTER EARLY POTATOES.

When you have planted six rods of Celery you will have four rods left for Turnips. As you take up the Potatoes sprinkle a little guano upon the land, fork it in and sow the Turnip seed whilst the surface is fresh.

PLANTING CAULIFLOWERS.

As soon as you have pricked out the Celery plants into nursery-beds, you may plant a row of Cauliflowers up each walk, and as soon as you take the Celery plants away you may plant a row up the centre of each bed; and as soon as you have taken up your second early Potatoes put on to the ground three tons of good rotten manure, and dig it into about five rods of land, then plant it with Cauliflowers, placing them, as I have before recommended, 17½ inches from row to row, and 20 inches from each other in the row.

SAVOYS.

You may also plant five rods of Savoy, after second early Potatoes, digging in three tons of manure the same as for the Cauliflowers. Plant them 21 inches from row to row, and 2 feet from each other in the rows.

BROCCOLI.

As soon as you can remove the early Peas from the land, dig it over deeply and well, and plant about four rods of Broccoli; the one half of them Cape and the other half winter Broccoli. Plant them about 27 inches from row to row, and about 30 inches from each other in the row. You may stick a few late Broccoli also in any bit of spare land until the first week in October. It will then be time to take up the Carrots, and the Broad Beans will be off the land by then; and as you have not put any manure to either of those crops you may begin and dig it very deep, and when you have made a good, deep, straight trench, lift up your winter and spring Broccoli with the spade, shake the soil from the roots, and lay them in the trench with their heads facing the north or west. Half fill the trench with good rotten manure, then go on with the digging until you have room for the next row, and mind to cover the stalks close up to the heart, and press them down with your foot. You may place them in the trenches and in the rows as close together as you like, so that they are not one upon the other.

TURNIPS AFTER EARLY PEAS.

As I only advise four rods of Broccoli to be planted, you will have two rods left for Turnips; but it will be of very little

use sowing them after Peas until there has been a good soaking of rain, unless you give them a good watering or two.

SOWING CABBAGE SEED FOR SPRING USE.

After planting five rods of Cauliflowers and five rods of Savoy, you will have four rods of second early Potato land left. Towards the 20th of July dig into that space two tons of good rotten manure, mark it out into beds, and sow the seeds whilst the land is fresh dug. Remember the red lead and do not sow the seeds too thickly, and remember to sow a little Red Dutch Cabbage for pickling. You may sow a few Savoy also.

PRICKING OUT CABBAGE PLANTS.

As soon as the Cabbage plants are large enough to handle, dig over the two rods of land where the late Peas were, and the one rod where the Lettuces were. Mark it out into beds, and then thin out the seed-beds (as you would Carrots or Onions, leaving the best at a proper distance apart in the seed-bed), and prick out the thinnings about 6 inches or 7 inches apart every way. If you have a good dressing of charred rubbish to put upon the land before you dig it so much the better.

SOWING WINTER ONIONS AND LETTUCES.

About the latter end of July or the beginning of August, put a good dressing of rotten manure upon the four rods of land where you grew your Cauliflower, Broccoli, and Savoy plants for sale. Dig it in deeply and well, and sow the one half with winter Lettuce, and the other half with winter Onions. The best sort that I have grown for market are the hardy green Cabbage Lettuce (a sort that I always grow the seed myself, as I cannot always get it true from other seedsmen), and the Brown Tripoli Onion.

PLANTING CABBAGES.

As soon as you have the Onions off the land, dig it over deeply and well, and plant it with Cabbages. Take for this purpose the best plants out of the seed-bed. Plant them as already recommended. You need not put any manure upon the land this time, if you did it as I recommended for Onions; but you may put a good dressing of charred rubbish if you have any.

RED CABBAGE.

As soon as you have the Carrots off from the land, you may put a good dressing of rotten manure upon it, and upon the land where the early Turnips were grown; dig it in and plant the space with Red Cabbage as formerly recommended.

This concludes the planting and sowing for the first year; and as soon as the very busy time of year is over, if all is well, I will commence on the second year, which will not cost half the money in manure, and I have no doubt you will have very nearly double the crops.

The worst crop that I have had this time is the Walnut-leaved Potatoes. The frost bit them off so often until they were not more than one-third of a crop; but I have a beautiful crop of Celery upon the land; and if your reporter comes to our poultry show, which is the 24th of next month, I shall be very happy to give him a stick, so that he may be able to judge what sort of Celery may be grown with bone manure.

I am now (20th August), selling Cauliflowers at 2d. each, grown after Potatoes with a little guano dog in the land. They were planted about the 12th of July.

P.S.—I see I have made one mistake, as I have advised to lay down the Broccoli upon the Carrot-beds, and I have also advised to plant them with Red Cabbage, which cannot both be done; but you will have plenty of Celery ready to dig up by the time you will want the land for either of those uses.—THOS. JONES.

(To be continued.)

THE POTATO DISEASE.

So much has been written on this subject, that I feel diffident in making a few observations in reply to Mr. Abbey's excellent letter from Yorkshire in THE JOURNAL OF HORTICULTURE of the date of the 20th of August.

I can fully corroborate what Mr. Abbey says of that now-favourite Potato the Fluke Kidney; and a few years ago, after a trial of the Fluke in 1854, my observations were sent to THE COTTAGE GARDENER for publication. Mr. Abbey recommends Potatoes being planted farther apart, which no doubt is an

excellent suggestion, and he is averse to planting in newly-broken-up ground. In the neighbourhood of Cheltenham an excellent Potato, named the Alstone Kidney, has been cultivated to a great extent for the last twenty-five years; but the soil, as might be expected, is tired of this sort. Many of the small Potato growers have planted the Alstone every second year for twenty years on the same soil. Two-thirds of them this season are diseased.

There are two modes of mitigating the disease in part:—First, to raise Potatoes from the seed brought from a distance, as recommended by Mr. Abbey. Second, to plant no Potatoes in the spring or autumn which have been raised within a hundred miles of the spot where they have originally come from.

Growers of Potatoes ought to club together in 1862, and procure seed and seed Potatoes from the extremities of the kingdom—from France, Belgium, and other foreign countries; and one more precaution is necessary—not in future to raise them above once in four years on the same identical soil. I do not believe electricity has anything to do with the disease. That it is increased by wet weather is quite obvious. It began in 1845, a wet summer, and has always been observed to be more serious in wet than in dry seasons. Too-late or too-early planting are both hurtful to the tubers.

I have only in conclusion to remark, that my small sample of Fluke Potatoes planted in 1854 were procured from Mr. Baskerville, a nurseryman at Bristol. These had no disease; they gave a heavy crop. The haulms of these Flukes were touching those of other sorts quite diseased, but the Flukes were not infected, plainly showing it was not contact which promoted the malady.—H. W. NEWMAN, *Hillside, Cheltenham.*

LABLAB—TRAINING MANDEVILLA SUAVEOLENS—BREADTH OF SHELVES.

WILL you have the kindness to inform me what Lablab means? It is one of the names of many seeds sent me from Sidney. I have two of this Dolichos lablab up, and doing well. Is it worth growing? and is it a hot, or greenhouse plant?

I have a Mandevilla suaveolens which was potted two months since in a fourteen-inch pot. It has made two shoots 4 feet long, tightly twisted round the wire towards the rafters (which are very high). Should I shorten these shoots, and when?

I have lately enlarged my hot and stove-houses. What material would you advise for the tables, and what width to be ornamental and convenient? Some recommend stone, some slate, some wood; so when country doctors differ, we go to the metropolis for advice.—JULIA, *Manchester.*

[The word *Lablab* signifies a *Convolvulus*, or a twining plant, in Arabic. Your plant, if true, has nothing of the *Convolvulus* except the twining habit, the blossom being something like a Pea. It is a synonyme for *Lablab vulgaris* and *Lablaria vulgaris*, an East Indian plant, that requires the heat of our stoves in winter to keep it healthy. You might try a few of your plants against a wall this hot autumn. It is hardly worth its room in a house.

One shoot of the *Mandevilla* would have been better than two. Do not shorten it till it reaches and gets along the rafters. If it clasps the iron too tight it will be killed.

Plants never do better than on wood shelves; but slate and stone are more lasting, and in a hot-house allow of water being used freely. Central platforms should seldom be above 5 feet in width; others, according to convenience.]

WHAT TO LOOK FOR ON THE SEASHORE.

(Continued from page 121.)

CRUSTACEA.

CRUSTACEANS (from the Latin word *crusta*, a hard rind or shell) are a class of articulated animals whose natural covering is less solid than that of the majority of testaceous Molluscs, but much firmer and harder than the skin of the naked Molluscs, and whose conformation is essentially distinct from other classes, especially in the circulating, respiratory, and locomotive organs. The commonest and most familiar types of this large family are the common Crab and Lobster. The crust, or shell covering which envelopes these animals, contains a considerable

quantity of carbonate of lime, and in the smaller forms, such as Prawns and Shrimps, it becomes of the consistency of thin, transparent horn; but in the larger forms, such as Lobsters and Crabs, it acquires a much greater density, is perfectly opaque, and of the hardness of true shell, or even of stone; the tips of the large claws of the Crab are of an intense hardness.

The ordinary provision of members is five pairs of true feet, and three pairs of organs which are called *foot-jaws*. In addition to these a large number of the species have five or six pairs of jointed limbs attached to the under surface of the abdomen, which are used, in most cases, for progression, and are denominated *false feet*. The mouth is provided with three pairs of jaws and two pairs of antennæ.

The body is divided into distinct rings or segments, moveably articulated together, and thus forming a sort of external skeleton by which the soft internal parts are protected, and by affording hold for the muscles enables the animals to move with more swiftness and precision than the unprotected Holothuridæ. This skin or armour is hardened by a calcareous secretion, and its sections are united by a thin membrane, which gives a great amount of flexibility to the entire body. As the creature has no power of adding to the size of its shell to make room for its increasing growth, it is in the habit, at stated periods, of throwing off its old coat and secretes a new deposit of calcareous matter over its entire surface.

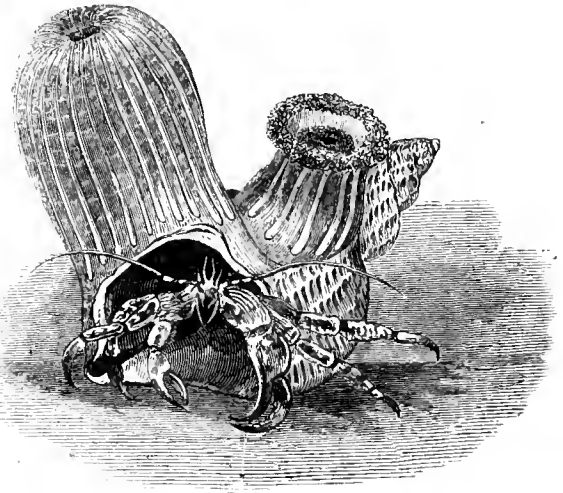
Crabs cast their shells once every year. The process lasts for some length of time, and appears to be accompanied with a considerable degree of pain. For several days after the shell is cast off the body is covered only with a soft skin, and in this helpless state the animal very frequently falls a prey to other and more powerful marine creatures. It is a singular fact that the stomach is also thrown off with the shell, and is renewed as the fresh shell makes its appearance. This moulting, if we may so term it, takes place in the winter season, usually between Christmas and Easter, and during the time of its duration the animal hides itself in the cavities of the rocks or beneath some large stone. It is stated that a hard-shelled Crab remains on guard over his unprotected neighbours, to protect them from attack, and to give warning of any approaching danger. The operation of casting the shell commences at the thorax, where it splits, leaving an aperture through which the body may be drawn. The breast-plate is then dropped, and the legs quit their crustaceous coverings, leaving the old shell in two parts. These creatures have also the power of renewing lost or wounded limbs, for on one of the legs of a Crab being injured it would bleed to death were it not for this provision. It effects the separation of the limb by steadily stiffening it, when it suddenly drops off, and always at the junction of the first and second joint, where a small gland is placed for the supply of material for future legs. A scar is formed over the raw surface caused by the separation, and this afterwards becomes a sheath for the new limb, which gradually increases in size, and attains its proper shape, remaining, however, unprotected by any hard covering until the next change of shell, when it assumes its case with the rest of the members, although it never reaches a size equal to the corresponding limb on the other side of the body.

The Crustaceans are provided with different means of locomotion. Some have broad plates expanding at the tail, as is the case with Prawns and Lobsters, enabling them to move through the waters with great rapidity. The common Lobster is said to be capable of darting back 30 feet with inconceivable swiftness, which when we consider the density and resistance of the water, is a proof of the extreme power they are able to exercise. In other members of the Crustacean family, as Crabs, there are no terminal plates, only a thin flap bent under the body and pressed close to it, except when forced out of its place by the spawn. Some Crabs, it is true, have the power of swimming, but it is by means of a different apparatus to that employed by the Lobsters. In the common eatable Crab (*Cancer pagurus*) all the feet are terminated with sharp tips, with the exception of one pair of limbs, which are expanded into strong grasping claws. But there are some species common to our shores, in which the last joints of the hind legs are dilated into a broad, thin plate fringed with stiff hairs, which serve as oars and row the animals with much velocity through the water.

The Crustaceans possess all the senses of higher animals in a state of considerable perfection. The propagation of the race is carried on only by means of eggs—none of the tribe bringing forth its young alive. These eggs, or "spawn" as they are familiarly called, are intensely red globules carried underneath

the belly, and from the manner in which they are penetrated by the fine hairs which fringe the false feet are extremely difficult to remove. Thus these false feet are manifestly intended as means of protection for the spawn as well as for locomotion; for the eggs on being laid are deposited on these organs, and carried about with ease to the parent and safety to themselves until close upon the period of hatching.

The most highly endowed representatives of the Crustacean tribe are those called *Podophthalmata* (from two Greek words signifying "a foot" and "an eye"), and known as "Stalk-eyed" Crustacea, from the strange fact of the eyes, instead of being fixed in the head, or on the surface of the body, being situated at the extremities of long horny stalks, which can be moved to and fro in every direction, thereby considerably increasing the creature's range of vision. The strangest and most beautiful, perhaps, of these are the Glass Crabs (*Phyllosoma*), one species of which may be seen on our shores, although more usually confined to the tropics; one of these creatures looks like an oval plate of the most lucent glass, with a broad tail and divergent limbs. It is so perfectly clear and colourless as to be scarcely detected but by its eyes, which are of a bright blue colour, and fixed at the extremities of long stalks. Our common Prawn (*Palaemon*) is another specimen of transparent structure, and is an extremely graceful and active creature. The brushes of hair with which some of their feet are provided serve them as cleansing organs, and, from the manner in which they are made to reach all parts of the body, they discharge this service very effectually. Another strange creature is the Hermit Crab (*Pagurus*), in which the abdomen is prolonged, but destitute of a shell, so that the tail is soft, and being thus unprotected its instinct leads it to take possession of the empty shell of a univalve Mollusc, and when alarmed they withdraw themselves closely within, and secure the aperture by placing their claws over the entrance.



The Crustaceans have been variously divided, Cuvier classing them into two large sections—namely, Malacostraca, or soft-shelled, and Entomostraca, or incised-shelled; the former including all the true calcareous-shelled animals of the class, and the latter those which have coverings of a thinner consistency—horny rather than calcareous. We shall, however, adopt a more recent division as better adapted to the plan we have laid down, and shall arrange them in five different groups as follow:—*Cirrhopoda*, *Entomostraca*, *Nyphosura*, *Podophthalmata*, and *Eidriophthalmata*. The distinct characteristics of each class will be given as they are brought under consideration.—W.

(To be continued.)

VINES INJURED BY BURNING SULPHUR.

MY Grapes being very badly mildewed, I gave my man some flowers of sulphur with full directions for dusting it on. Not content with this, he took it into his head to burn a quantity of sulphur in the house on a shovel, with, of course, disastrous

results. All the leaves are destroyed. Will not the Vines be seriously injured for another year? and is there anything to be done under the circumstances? I only use fires to keep out frost.—DELTA.

[If your wood on the Vines is getting brown, and you shade from the brightest sunshine, the Vines may produce a good crop next year. If the wood is still green, they will probably not do so. The best plan would be to give them every chance, to wait and try them, and if they did not show fruit treat the wood for another season's crop. If the young shoots had no fruit and looked sickly, the best plan would be to cut back to the bottom of the rafter and grow on afresh. We have spared no pains to show that sulphur if ignited at even a comparatively low temperature is ruinous. We have been told of an instance where a similar mistake was made, and being early in the season the Vines produced fresh leaves and ripened their crop. We should give them the chance.]

A MELON-HOUSE.

AVOIDING THE CONSUMPTION OF DUNG.

NOTICING in your No. 14, July 2nd, of THE JOURNAL OF HORTICULTURE, a letter from "N.," deploring the state of contention between his steward and his gardener, I think I am now in a position to point out a way to end this unseemly strife, and to cement a friendship alike valuable to both.

My master suggested the idea and erected last summer a house in which to winter plants and cuttings. It is 30 feet by 12 feet, 3 feet high on the walls, and 8 feet up to the ridge. There is a bed formed on pillars and rafters 4 feet wide on each side, with 2 feet 6 inches for a pathway between. Underneath these beds, simply resting on *terra firma* is a ten-inch flue formed of Staffordshire tiles, making the entire circuit of the house. There is one partition making one part 20 feet and the other 10 feet long. Well, it wintered the plants admirably. I gradually hardened them off, and had the house cleared by the first week in June, and then prepared my Melon and Cucumber-beds on the stages or shelves where the plants had been, and now beneath Hartley's rough plate there is a scene most charming. No unsightly and reeking manure-heaps to offend the sight or smell; but here in my 20-foot house by 12 feet is a promenade of a most beautiful kind, with a few leaves on my plants; to add richness and beauty to the scene are "seventy" splendid Melons of different kinds, some fit for the table, and capable of pleasing the most exquisite palate, whilst others are progressing.

The steward can come and enjoy the fragrant scene without begrudging a forkful of manure. He can grow his Turnips for the sheep without any help of mine, and I can grow the Melons and Cucumbers for the family without his. So being independent of each other we are on the best possible terms.

But to proceed. In the ten-foot house—it is a gem of a place—there are the Cucumbers, the plants are thick on the beds, and I have trained them all over the roof, and the fruit hangs thickly on the sides and overhead. On a hot sultry day it beats any harbour for a cool and pleasant shade. It is, in fact, a favourite spot. But I shall be trespassing on your valuable space; hoping that this will meet the eye of "N.," and give him some relief from his present grievances.

This is, too, without fire heat, except a little after a wet day or on chilly nights. I send you a list of the sorts of Melons grown. Beechwood, Searlet Gem, Trentham Hybrid, Golden Perfection, Excelsior, and Elphinstone Adair.—W. H. R. R.

HEATING, VENTILATING, AND STOCKING ORCHARD-HOUSE.

PLEASE advise me under the following circumstances. I have a span-roofed orchard-house, which I have before described in your pages, originally 60 feet by 14 feet, standing seven points west of north and south, of which I have partitioned off 27 feet, and planted it with Vines trained to upright rods. The Vines are 30 inches apart; twenty-three of them Black Hamburgs, ten Royal Muscadines, one Muscat St. Laurent, one Muscat de Sarbelle, one Muscat Madeira, one Muscat Précoce d'Aout—(Shall I add a Bowwood Muscat and a Buckland Sweetwater?)—in all thirty-seven, leaving five vacancies from deaths; which room, however, I think of occupying with two Brown Turkey

Figs in pots and two Tangerin Orange trees, the latter to be kept in a cellar from October to May. This vinery has its border supported by bricks, and stands about 20 inches higher than the surrounding soil. Against each side and against the end of this vinery I have erected a lean-to orchard-house, 6 feet, 9 feet, and 8 feet wide respectively; all, however, open to one another and to the vinery. The sides are 4 feet high, boarded, with an eleven-inch shutter under the eaves on all three sides; and two doors, one east, the other west, so as to give plenty of air to the house, which, as you will see, is 36 feet by 28 feet. Now, I am told that I cannot hope to ripen my Black Hamburgs in this house without heat, as the air is keen here from being 500 feet above the sea level. I have a furnace at the south end of the vinery, with a seven-inch-by-nine-inch flue, brick on edge and slate top, running the whole length of the house, built for security against dull rainy summers and spring frosts. I, therefore, purpose tacking tiffany round the vinery, and having a large opening for air at the south apex, above the place where the rafters of the south lean-to house come up to the perpendicular glazed end of the original house, which is now the vinery. I then propose to have another chimney erected within the partition, so that the flue may be used for the Vines alone, by having a damper at the end of 27 feet, and thus create more heat than if the smoke were allowed to roll on 33 feet more along the narrow part of the house where fire heat would not be wanted. Pray tell me if this plan will do, or is it necessary, and if so, how large the air-openings should be? The present one is just under the roof-tree, 9 inches deep. There are two sets of fifteen-inch panes of glass above the doorway over the furnace, leading by steps into the lean-to, available for making ventilation; or could I make cheaper and more efficient ventilation by making some of the twenty-inch-by-fifteen-inches panes near the roof-tree moveable?

Will you also advise me as to the stocking of the rest of the room under glass, taking notice of the fact, that the furnace-door being in the centre of the back of the south lean-to, will, of course, heat it somewhat, though the two doors being only 14 feet from it on either side in a direct line may counteract such heat? The part which is 33 feet by 14 feet is at present stocked with pyramid Pear trees in thirteen-inch and fifteen-inch pots as follows:—

On Quince Stocks.

1 Alexandre Bivort	1 Dr. Trouseau
1 Alexandre Lambre	1 Doyenne du Comice
1 Baronne de Mello	1 Fondante d'Automne
1 Bergamotte d'Espérance	1 Joséphine de Malines
1 Beurré d'Amanlis	1 Passe Colmar
1 Hardy	1 Pius IX.
1 Sterckmans	1 Zéphirin Grégoire

On Pear Stocks.

1 Bergamot, Autumn	1 Glon Moreau
1 Gansel's	1 Jargonelle
1 Beurré Clairgeau	1 Leopold I.
1 d'Arenberg	2 Louise Bonne of Jersey
1 d'Amanlis	1 Marie Louise
2 Ronce	2 Winter Nelis
2 Diez	3 Prince Albert
1 Easter	1 Seckle
1 Giffard	1 Thompson's
2 Superfin	1 Van Mons (Léon le Clère)
2 Bon Chrétien (Williams)	2 Portugal Quince trees
3 Colmar d'Ete	2 Medlars
2 Conseiller or Marechal de la Cour	5 American Apples
1 Doyenne d'Ete	3 Melons
1 Duchesse d'Angoulême	1 Newtown Pippin
	1 Northern Spy

Now, I am told that most of these trees would do equally well if planted out in a south border 12 feet by 90 feet, protected by a nine-feet-high stone wall from the north, and to be covered with tiffany next year. Would you kindly state which trees I might safely turn out in this climate, and whether, if so turned out of doors, they should be taken out of their pots, or would be better for being left in pots and sunk in the earth? The soil is ordinary garden soil on a sandy clay, which grows the Cabbage tribe to great perfection. I should certainly like to have the orchard-house available for more valuable fruits than Pears; and if I could safely turn out most of the above-named, I thought of planting the house with Apricots and Plums (pyramidal). At present I have in thirteen-inch and fifteen-inch pots, the following in the lower part of the house—the three lean-to's:—

14 Peach Apricots	1 Blenheim
1 Kaisha	1 Pine Apple
1 Royal	

Is Blenheim, Shipley, or Henskirke, or any other worth adding?

Plums.

- | | |
|--|-----------------------------|
| 10 Green Gages (These I propose to keep in pots, as I hear they ripen with more flavour if turned out of the orchard-house in July.) | 5 Coe's Golden Drop |
| 5 Denniston's Superb | 5 Purple Page |
| 2 Early Favourite | 5 Jefferson's |
| 2 Early Prolific | 1 Guthrie's Late Green Gage |
| 1 De Montford | 5 Prince Englebert |
| 1 Mirabelle | 3 Reine Claude de Bayay |
| 1 Diamond | 1 Ickworth Impératrice |
| | 1 St. Martin's Quetsche |
| | 2 Kirke's |
| | 1 Victoria |
| | 1 Washington |

Do you think any of the above Plums might safely be entrusted to the tender mercies of our northern-hill air in a well-sheltered garden under tiffany? If so, which, and which might be planted out in the house to be lifted every autumn?

Of Peaches I have the following:—

- | | |
|-------------------------|-----------------------|
| 5 Royal George | 1 Barrington |
| 3 Noblesse | 1 Gaiende |
| 2 Early York | 1 Chancellor |
| 2 Early Grosse Mignonne | 2 Malta |
| 1 Petite Mignonne | 1 Seedling |
| 1 Grosse Mignonne | 1 Walburton Admirable |

and propose to add (?)

- | | |
|---------------------|----------------------|
| 2 Reine des Vergers | 2 Chancellor |
| 1 Gaiende | 2 Monstreuse de Doué |
| 2 Malta | 1 Early Newington |
| 2 Bellegarde | |

Of Nectarines, I have:—

- | | |
|----------------------|--------------------|
| 2 Hardwicke Seedling | 3 Pitmaston Orange |
| 3 Due de Telliers | 2 Elruge |
| 1 Downton | 2 Violette Hâtive |
| 1 Murrey | |

to which I propose to add Bowden and Roman.—IGNORAMUS, *Settle, Yorkshire.*

[We recollect giving your case full consideration some time ago, though as no reference is given, we cannot find time to trace your previous description, and what was definitely said about the plans. We think your plan of a proposed second chimney in the middle a good one, as you can heat the vinery without heating the other part as you deem fit. You have so changed the character of the original house, by the lean-to's against it, that top air will now be essential to the vinery, and the best way you could do that would be to make every alternate square 20 inches by 15 inches at the apex moveable.

Your collection of Pears is very good, all of them are hardy enough to stand your climate; but each of them is liable to have every blossom destroyed by spring frosts, and, therefore, the importance of having them under glass until all danger is over. The Pears will be all the better if turned out after the fruit is swelling. If turned out altogether, they had better be planted out of the pots. If turned out for the summer and autumn, the pots should be half plunged and well mulched. We think you might grow Vines in such a house—say 3 feet to 4 feet apart, as a late crop, giving them hardly any heat, by keeping the damper in the flue as you propose; and before the Vines became far enough advanced the Pears could be removed, and be brought back in the beginning of winter when the Grapes were out. If these Grapes were left hanging the most of the winter with the assistance of the flue, the Pears would take no harm out of doors until the fruit-buds began to swell. You might also grow Figs in summer under the Vines, or even if there were no Vines.

Again, If you grew your Apricots, &c., all of which are good; and kept these Apricots in pots, they could stand thicker when in bloom, and would require the room when growing, which would be obtained by setting the Pears outside when safe.

The same remarks apply to Plums as to Pears. Most of these, with the exception of such fine late kinds as Coe's Golden Drop, are improved in flavour in fine seasons, when ripened out of doors; but with plenty of air given they are very good under glass. Of course, just as in the case of Pears, in a fine spring they do well out of doors, but in a changeable, frosty spring there is the chance of having no fruit, and tiffany, though valuable, is far inferior to glass.

Your collections of Peaches and Nectarines are very good. We could say nothing definitely of the orange-coloured, sandy, clay subsoil, as potting material, without feeling it, smelling it, and trying it. We would try it merely at first. We would prefer for the bulk the soil that grows Cabbages so well, with good mulching. As a rule we do not like any subsoil for fruit trees in pots. There is no necessity for having turf rotted down. Soil 5 inches or 6 inches below the turf would suit admirably.

There is hardly a district in which a few loads might not be obtained from the mounds thrown up on the sides of roads, and such we would prefer to your orange-coloured subsoil, at least until it was seen how the plants liked it. As said above, we would prefer well-aired earth from the kitchen garden. Very often the mode of potting has more to do in these matters than the soil.

We have not ourselves tried tiffany-houses. From what we have observed and noted, we should conclude they would be valuable for Pears, Plums, and even Peaches, &c., when coming into and when in bloom, provided air-openings were left for fine mild days, so as to prevent the bloom being weakened; but as soon as the weather could be depended on the trees should be exposed. As yet we have no faith in such a house in which the trees were to be kept all the summer. The fruit would be too much shaded to be of much use.

We give these few remarks, though we are of opinion that you are able to advise us from your practice than we are to advise you; but we thus show our willingness, and we hope that some coadjutor or correspondent will be better able to advise you, and that no other correspondent will send such a cloud of questions.]

ARAUCHARIA IMBRICATA BRANCHES DYING— IVY LEAVES BECOME BROWN.

I HAVE an Araucaria imbricata 20 feet high which has been very healthy till this year. It is in a soil well-drained, and not at all damp; but now in the middle of the tree two or three of the branches close to the trunk are worn as if they had had something round them; for a foot all the prickles are torn off. I fear the branches will die.

I have two plants of the Ivy growing up the north side of my house, the leaves of which have become like those I enclose, and the plants seem dying. A Bignonia radicans has died. Is it the effect of salt which has been thrown over the carriage-drive?—FLORA.

[The probability is that that part of your fine Araucaria was "struck by lightning"—a disease so called that is not unfrequent in Fir plantations in Scotland. There is no cure for it, and if it is severe you will certainly lose these branches; but perhaps it is from a different cause. No one could tell without seeing it.

Your great Algerian Ivy has had a severe pinch from something, but it is as likely the effect of last winter as of the salt. It is foolish to use salt for weeds at all near where plants are growing; the first shower washes the baneful brine into pools over the roots of the plants, and brown they go. Were it not that you mentioned the salt, we should say the Ivy and Bignonia were suffering from severe drought at the roots. Perhaps it is so still, and if so the remedy suggests itself. The salting is without remedy.]

MANAGEMENT OF A PIT-FLUE—DISTANCE OF CUTTINGS FROM THE GLASS.

WILL you inform me what is the best way of arranging the flue for heating a pit of three lights, 12 feet by 7 feet 6 inches, 3 feet in height at the back, falling to 1 foot, and 3 feet in depth below the ground line? At present, the fireplace is at the corner of the lowest side. The flue runs in the wall along the lower side, and up one end to the chimney. We can get nothing to stand the heat well by the flue near the fire, and last year our plants were killed by an escape of smoke. I have seen a pit near here, where the flue runs across the middle only. Then in the summer they cover it up; in the winter lay boards a little above the flue for the plants.

How near the glass should the cuttings be?—T. W. C.

[We consider your arrangement of the flue to be better than the one taken across the middle. If your flue rises a little to the chimney, all the better. With the furnace-bars low enough, such a flue merely along the front and one end ought to answer excellently. Of course, it is easy to make such a flue too hot. Very little fire ought to do, and the ash-pit door and damper to be well regulated. Bad management, or a very ill-built flue, would be the cause of the explosion, or a very dirty flue. If the flue is very hot near the surface, make it thicker there for a yard or two, or cover it over with sand. No plants should stand on it. At pages 336 and 419, you would see everything about arranging

such a pit by temporary floorings, &c. For the management of cuttings, see pages 420 and 425 in "Doings of the Last Week."

The distance from the glass lies in a nutshell. The nearer the glass the less danger of being drawn; but the greater danger of scorching if shading is not attended to. One foot is a good medium distance. At 2 feet they will feel the sun less, and will require less shading, and have, therefore, more light.]

REMOVING LARGE PEACH TREES.

I HAVE a coolinery about 30 feet long, the back wall of which is about 11 feet high. To this wall I wish to remove some fine trained standard Peach trees, now growing alternately with some dwarf-trained trees. I find the latter are now quite sufficient to cover the wall without the standards. The trees were planted four years since, and now girt 5 inches, and cover an area of about 20 feet. Their growth has been quite satisfactory, and they have made the best of wood this year. The roof of the coolinery, to the back wall of which I want to remove them, is quite capable of growing all the Grapes I require, without the addition of the wall which has hitherto been devoted to the growth of Grapes. My intention is to cut back two out of three of the leading Vine-rods as far as half way down the roof, so that there will be no great deficiency of sun to the Peach trees. Will you advise me how to go about the removal, so as reasonably to hope for success? Is there any root preparation necessary? I have enclosed a small portion of bark taken from one of my Pear trees, an Easter Beurré on the Quince stock. Several are similarly affected, the bark opening and looking very scaly. I am afraid if it progresses it will do considerable injury to their growth. Can you inform me what it is called, and if there is any remedy that can be applied?—C. R.

[Your Peach trees on the back wall of the coolinery will answer just in proportion to the light and air you can give them. If the roof should be densely clothed with Vines, the Peaches will not be worth eating, and after a year or two you will not get any to eat. If there are from 4 feet to 6 feet and onwards between the bearing-stems of Vines, that will admit a good degree of light to the north wall, and the Peaches will do well if kept cool enough until they are fairly set. It is too late to think of preparing Peach trees for removal now, except so far as keeping the head of the tree well regulated and free from all laterals, and the shoots shortened in a little to growing buds. This will so far husband the resources of the root, and cause the buds to plump and the wood to ripen, whilst as yet the leaves are nice and green. We presume the back of the Vinery-border contains fairish soil. We would have a little sandy loam and fine leaf mould ready to go immediately over the roots to encourage fresh rooting. Then from the middle to the third week of October we would commence taking up the Peach trees, taking them up carefully, beginning at the extremities and forking so as to disentangle the fibres, and wrapping them in damp cloths as we proceeded, unless the weather was shady and moist. We would then try and undermine the tree so as to get a ball with it if possible; but if we could not get much of that, we would be very particular in getting every root and taking care that the fibres should not be dried. In planting, be careful that the tree stands as high as it did before—in other words be sure that the stem is not buried lower than it was previously. To allow for sinking, the collar of the plant should be from 4 inches to 6 inches higher than you ultimately wish it to be. Then spread out the roots nicely, and damp them slightly through the rose of a watering-pot. Then proceed and pack them nicely in layers with the sandy loam and leaf mould. When all well covered give a good watering with water at about 80°, and when settled replace the surface soil. Syringe the leaves at the same time, as the longer they keep on so as to induce quick root action the better. If the sun shines brightly, not only syringe the leaves, but shade, but give no more shade than will keep the leaves from flagging. With such treatment the leaves will drop some time in November, and fresh roots will be making. To encourage them cover the ground with litter or tan during the winter, so as to keep the heat of the ground from radiating off; and if you keep your house airy and cool in spring as the buds swell, there will be plenty of root action to support them, and a good crop will be obtained. The success will, however, greatly depend in attending to these minutiae.

The piece from the Pear trees was rather too much dried

before we saw it, but on examining it and finding the alburnum all safe beneath the seemingly split bark, we do not think there is need of alarm as to the future—in fact, it seems that the tree has relieved itself of rather a stiff coat by bursting the outside layer, and distending the inner covering, and all for its own comfort.]

REMOVING DECAYED FLOWERS FROM ROSES.

THE other day I was cutting some Roses from my standards, when, to my surprise, an amateur friend assured me that I was injuring my trees; that standards did not like to have their flowers removed. I had always thought as a rule that the remaining flowers bloomed all the stronger if some were removed; but as my friend's standards are always very superior to mine, I should be inclined at once to bow to his dictum if the gardening world had not at all times so high an authority as yourself to fly to, sure of an obliging opinion upon any point of doubt or difficulty.—H. A.

[Your friend has a wrong idea altogether about Rose trees; the more Roses you take from a tree or bush Rose, and the sooner you do it after they are fit to gather, the better it is for the future health of the tree. If the strength of Rose trees was the object in growing them, no Roses should be left on them at all. Tell your friend what is here written, and tell him to mind it in future with his own Roses, and mark the difference, you will thus bring him over to the truth.]

CONTRAST BETWEEN ONE HONEYSUCKLE ON AN EAST AND ANOTHER ON A SOUTH WALL.

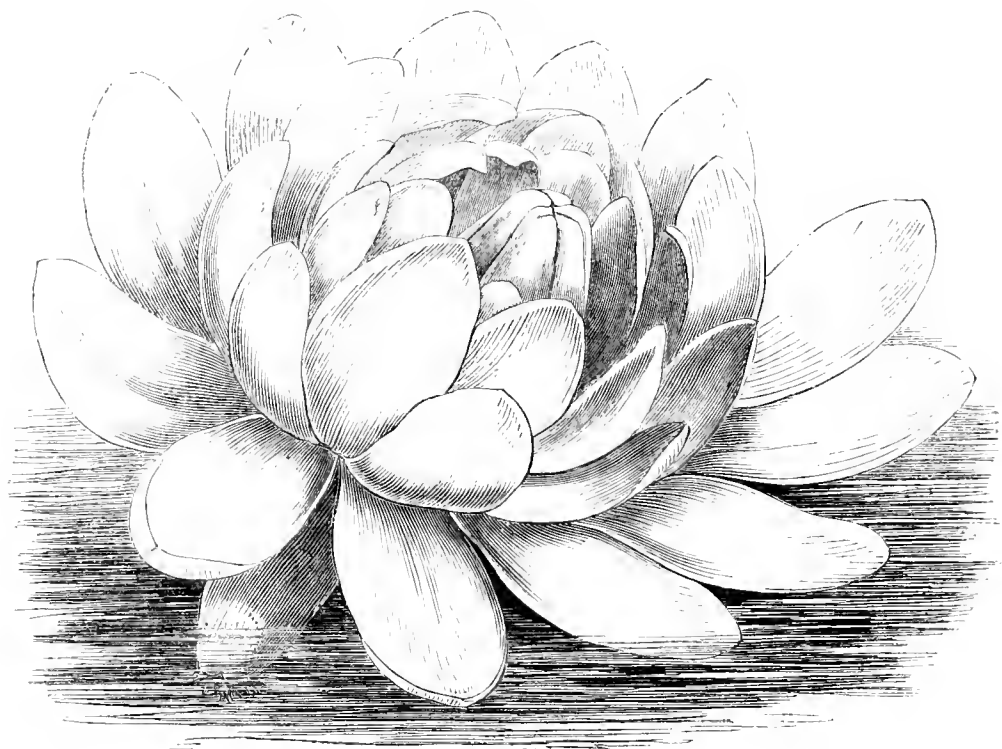
I HAVE two Honeysuckles, planted about six years ago, against my house by the drawing-room window—one facing the south, the other round the corner facing the east. Both are planted under the projecting eaves running round the house, and the roots are consequently generally dry. The one to the east is planted on the lawn, that on the south front is in a narrow border, and their roots are within a few feet of each other. Both plants have grown vigorously, but the one at the east side is always a month later than the other. They are both always loaded with blossom; but the one facing the south is always attacked with insects soon after it begins to blossom, to such an extent that more than three-fourths of the blossoms never expand, but become a black mass of a glutinous consistency, which seem to defy all our attempts to get them clean. Syringing and washing are of no avail, and the surface is too large to attempt fumigation in the open air. The sister plant growing round the corner is never attacked with insects of any kind, but is as clean and healthy as can be desired: it does not, however, produce so many clusters of bloom in an equal space, but every one opens well. What can be the cause of the one on the south front being so dreadfully infested with aphides? Is it because the roots get too dry and hot? as that facing the east is more exposed to rain in the spring when easterly winds prevail, while the other is sheltered. Can anything be done to mitigate the evil?—R. C., *Harlington*.

[You have yourself suggested the evil and the remedy. When you prune the Honeysuckle in the autumn wash it well over with soap and water, and when dry paint it all over with clay paint, a quart of which had an ounce of flowers of sulphur mixed with it, and an ounce of shag tobacco steeped in the water that made the paint. Stir the soil, and give a good soaking of water as soon as the buds break. Repeat the operation several times during the summer if dry. A little rotten dung, or tan, or cocoa-nut fibre on the surface would lessen the force of the sun in drying the soil, and might be covered with earth to prevent its being unsightly.]

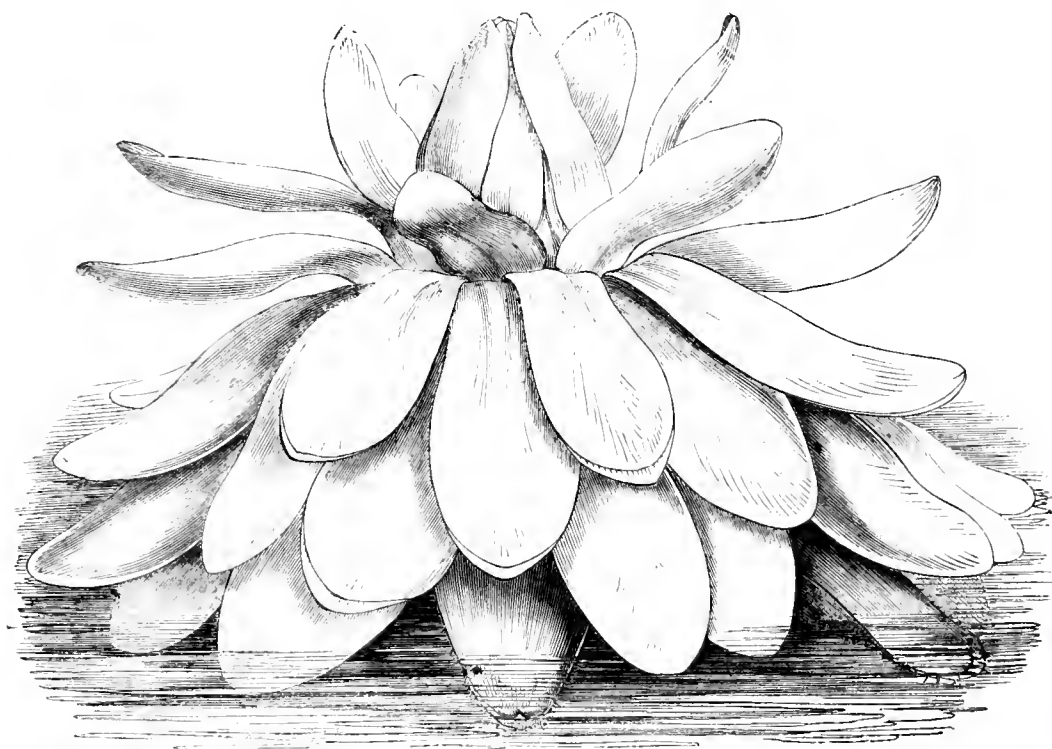
POMOLOGICAL CLEANINGS.

THE "PASSE MUSCAT" GRAPE.—I observe in the "Scottish Gardener" that Mr. Cramb wishes to show this Grape with the Bowood Muscat. Surely the name is a myth! There is a Grape called *Pause Musqué*; and in Dr. Hogg's "Fruit Manual" *Passe Musqué* identical with Muscat of Alexandria; but no "Passe Muscat" in any catalogue, English or foreign.—VITIS.

VICTORIA REGIA.



Flower of *Victoria Regia*, as on first day of expansion.



Flower of *Victoria Regia*: first stage of second day's expansion.

Now that at Kew and elsewhere this magnificent queen of aquatics has been and is in its superlative of beauty, we may appropriately place before our readers a full description of the

plant from the pen of the late Professor Henfrey, with some notes on its culture from the pen of Mr. Iveson, gardener at Syon House, published in the "Gardeners' Magazine of Botany."

Nat. ord., Nymphaeaceae, § Euryaleae.

GENERIC CHARACTER.—*Victoria*, Lindley. *Tube of the calyx* sub-globose, adherent to the ovary, expanded into a torus at the throat; *limb* 4-parted, deciduous, coloured. *Petals* numerous, inserted on the throat and torus of the calyx; outer ones at length completely reflexed, longer than the calyx, the interior by degrees narrower, acuminate, rigid, approaching the form of the stamens. *Stamens* numerous, inserted with the petals on the torus in about three rows, fertile; the *filaments* subulate, petaloid, but rigid and firm, at length erect; *anthers* introrse, the cells situated below the apex, linear-elongate, adnate. Within the stamens the torus is prolonged upwards and inwards for about an inch, arching over inwards; on its margin is borne a circle of conical, fleshy, somewhat recurved, horn-like processes. *Ovary* globose below, concave-campanulate at the top, marked with rays setting out from a central beak, many-celled, the cells at first arranged regularly in one circle, afterwards becoming irregular by mutual pressure, with many ovules; *ovules* anatropous, parietal, affixed to a spongy, reticulated placenta by short funiculi; *styles* wanting, connate into a furrowed bell clothing the tube of the calyx (Lindley); *stigmas* forming radiating lines on the top of the ovary (R. Brown). There exist also about thirty large, fleshy, incurved, somewhat scroll-shaped bodies, forming projecting ridges at the outer ends of the rays of the top of the ovary, their outer faces being blended with the concavity of the vaulted portion of the torus. These have been described as stigmas.

Fruit baccate, globular-campanulate or cup-shaped, truncate, campanulate above, beaked in the centre, many-celled; cells many-seeded. *Seeds* oval-globular, with a horny testa, and copious albumen.

A vast aquatic herb, inhabiting still rivers in the north of South America, east of the Andes, rhizome perennial (!) Leaves gigantic, floating, orbiculate, peltate, flat, the margin elevated all round, radiately and reticularly ribbed, the ribs very prominent below, on very long foot-stalks, the venation of the lamina corrugated-involute; flowers large and handsome, at first whitish, becoming rose, especially within, periancles elongated; roots adventitious, breaking out below the insertion of the leaves on the rhizome; petioles, peduncles, calyx-tube, and the ribs of the leaves below, with abundant large and acute spines.

VICTORIA REGIA, Lindley. *Victoria Water Lily*.—The only species.

SYNONYMS.—*Victoria regia*, Lindley; *Monograph on Victoria* (with plates), privately printed in 1837; *Botanical Register Misc.*, 1838, p. 9; D'Orbigny, *Ann. des Sc. Naturelles*, 2nd ser. *Botanique*, vol. xiii., p. 57; Walpers, *Repertorium*, vol. i., p. 106; Schomburgk, *Twees in the Interior of Guiana*, p. 2, frontispiece; *Botanical Magazine*, 3rd ser., vol. iii., 1847, p. 1, tab. 4275-4278.

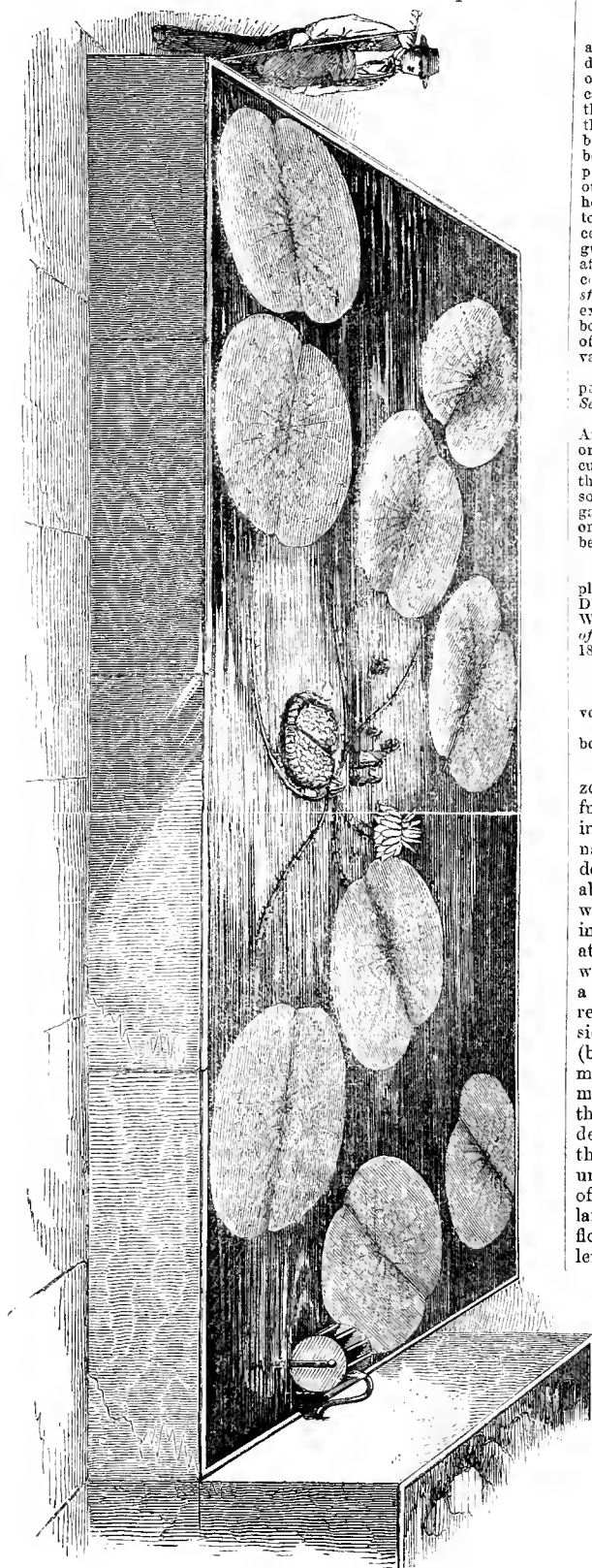
Victoria regina, Gray, *Mag. of Zool. and Botany*, vol. ii., 1838, p. 410.

Nymphaea Victoria, Schomburgk, M.S.

Euryale Amazonica Pöppig, *Forster's Notizen*, vol. xxxv., p. 9; *Reise*, vol. ii., p. 432.

Victoria Cruziana, D'Orbigny, l. c., p. 57 (leaves of the same colour on both sides, petals all rose-coloured).

DESCRIPTION.—A large aquatic herb, with a perennial rhizome large and tuberous, with internodes scarcely developed, furnished with numerous cylindrical adventitious roots abounding in air-cavities; the rhizome thick, of a brown colour externally, white within, changing to purple when cut (Schomburgk), decaying at the base as it develops leaves, flowers, and roots above, growing in 4-6 feet water. Petioles long, terete, clothed with copious prickles. Leaves floating, very large, 4 feet to 6½ feet in diameter; when first expanded, oval with a deep narrow cleft at one end, almost exactly orbicular when full-grown, peltate, with the margin turned up all round, forming a rim like that of a teatray; the upper side of the blade full green, with numerous reticulations forming somewhat quadrangular areolæ; the under side deep purple, or, according to D'Orbigny, sometimes green, (brownish-red in the specimen from which our drawings were made), clothed with short, spongy pubescence, with very prominent flattened ribs set edgewise on the lamina, radiating from the petiole to the circumference, and progressively diminishing in depth; these are united by cross ribs, also vertical plates, and the latter again by less elevated ones crossing them, so that the under surface is completely divided into quadrangular chambers, of which the ribs form the sides, and the general surface of the lamina the top, and as these detain air within them, they act as floats; all the ribs are more or less beset with spines, varying in length, sharp and horny, enlarged at the base. Venation of the lamina corrugated-involute—that is, the greater part wrinkled up like the petals of the Poppy, with the margin rolled in on all sides. Peduncles all axillary, from the rhizome, longer than the petiole (?), and rising above the surface of the water when the flower expands, terete, prickly, very copiously furnished with air-cavities, one-flowered. Flower 10 inches to 15 inches in diameter, somewhat pear-shaped in bud, fragrant. Calyx deeply 4-parted; the tube turbinate, green, very prickly, adherent to the ovary; the lobes of the limb large, oval, reddish-purple, concave, deciduous, a little prickly on the outside towards the base, rather shorter than the petals. Within, at the throat, the calyx enlarges into an annular torus bearing the petals and stamens. Petals very numerous, the outer ones larger than the calyx, oblong,



concave, obtuse, the inner ones gradually becoming narrower, much acuminate, and insensibly passing into petaloid filaments. When the flowers expand, which they do for the first time about five P.M., they rise 5 inches or 6 inches above the surface of the water, and become about half unclosed; at this time all the outer petals are white; this condition persists until about ten A.M. the next day, when the flower closes; about two P.M. of the same day it re-opens, assumes an upright position in the water, and the outer envelopes, which by degrees acquire a continually deepening pinkish colour, become completely reflexed, so that their summits touch the water all round; more and more of the erect petals are reflexed until only the strongly incurved filamentous petals of a rose colour remain closed up; but these very soon assume an erect position, spreading on all sides at the summit, so as to form a rose-coloured crown surrounding the essential organs, the yellow colour of the stamens then becoming visible in the interior. About ten P.M. the same night it closes permanently, and sinks below the water to ripen its seeds. The stamens are in about three circles, large, subulate, incurved below; anther-cells double, linear, intorse, occupying the inner face of the filament below the apex. Within the fertile stamens the torus is prolonged inwards for about half an inch, forming an arch over the stigmas, and bearing on its margin a circle of somewhat recurved, fleshy, horn-like bodies. Pollen apparently with a single coat. Ovary adherent to the whole length of the prickly tube of the calyx, and thus turbinate like it, with a deep radiated depression or cavity at the top, and in the centre a small conical beak or column; it may, therefore, be called cup-shaped, with a thick fleshy base, having air-cells extending down into the peduncle; in this fleshy substance are contained twenty-six to thirty compressed cells, arranged at first in a very regular circle near the rim of the cup. As the ovules enlarge, the cells gradually come to occupy the whole thickness of the germen, and by their mutual pressure are rendered irregular in arrangement and form; their parietes consist of a reticulated spongy structure, partially gelatinous, and the ovules are attached to the reticulations by short funiculi, the funiculus being turned toward the axis of the ovary. The stigmatic surfaces are upon the rays on the top of the ovary. At the ends of these rays occur about thirty somewhat scroll-shaped or uniform, spongy, incurved, projecting bodies, which were formerly taken for stigmas, but are mere processes from the inside of the vault of the torus connected at their bases with the ends of the stigmas; the circle formed by the points of their junction is about three-quarters of an inch below the insertion of the petals and stamens, and within the cup formed by the torus and calyx tube. The seeds are rather large, imbedded in the spongy placentas, with a horny testa, yellowish when young, and brownish or black afterwards, with copious albumen.—A. H.

"The plant at Syon was received from Kew in the second week of September, 1849, being one of the number which was distributed about that time. It had then four leaves, the largest being about 4 inches in diameter. It was placed at once under similar treatment to that which was so successfully pursued with the *Nelumbiums* in these gardens some years back, the basis of which was a constant circulation of the water in which they were grown. This was effected by placing three tubs at different elevations. The upper one rested immediately over a hot-water pipe. This warmed the water, which was then conveyed by a syphon into the one below, in which the *Victoria* in a pot was placed, and which was plunged in a bark-bed. From this the water was conveyed by a pipe into the third and lowest tub, from which it was returned into the upper one, again to follow the same course of circulation. Under this treatment, the plant soon became too large for its original pot, and in about two weeks it was shifted into one of a much larger size; and, continuing rapidly to increase its dimensions, it was removed into a wicker basket about 2½ feet in diameter by 2 feet deep. About the same time the size of the tub was enlarged by fixing sheet-lead to the upper part of it, and dressing it out into a superficies of 6 feet square, and about 3 inches deep at the sides, thus allowing room for the increased length of the leaf-stalks. In this situation it remained, producing a succession of healthy leaves, until January 5th, 1850. It was then removed into a low-roofed lean-to house, in which Mr. Beck had been ordered to prepare a slate-tank for its reception, 22 feet long by 12 feet wide, and arranged in the following manner:—the central portion was made 2 feet 6 inches deep for the reception of the soil; the remaining part, over which the leaves were to expand, was only 1 foot deep, which has been found amply sufficient. At

one end, and elevated above it, is placed a cistern through which pass two two-inch hot-water pipes, connected with a single one of the same size descending from it and continued all round the shallow part of the large tank below, whilst the centre and deeper part is heated by a four-inch pipe passing entirely round it. These pipes are all connected with a boiler, which heated the building before it was applied to its present purpose.

"That this may be clearly understood I will enter a little more into detail:—A large reservoir receives all the rain water which falls on the glass erections in this part of the gardens. From thence it is pumped up into a cistern which supplies the smallest one placed above the tank in which the plant is growing; thence, passing through a cock, it falls upon a small wheel, which, revolving gently, agitates the water, and this, flowing towards a waste-pipe, again finds its way into the reservoir, from which it originally came—thus keeping up a continued and healthy circulation. The water is kept at an equable temperature of about 85° Fahr. by the hot-water pipes arranged as before described.

"The soil in which the *Victoria* was planted consisted of three cartloads of good old turfy loam, which had laid in heap for two or three years. Previously to placing it in the tank, 6 inches of broken brickbats were laid on the bottom, and covered with turves of peat. On these the soil was laid in a conical form, rising to within 6 inches of the surface of the water, and in the centre of this the *Victoria* was planted. For three weeks after its removal into its new home there was scarcely a sunny day; indeed, it was generally very foggy weather; and during this time it only existed, making no apparent progress. The weather then changed, and it immediately showed evident symptoms of growth. On February 1st, I discovered on the surface of the soil several white roots, unmistakable evidences of health under water; on the 3rd it produced its first healthy leaf since its removal; by the 10th this was 10 inches in diameter; at the end of the month seven leaves were formed, the largest of which was 16 inches in diameter; during March it added nine other leaves, the diameter of the largest being nearly 4 feet. On April 1st, I discovered the first flower-bud, and on the 10th the flower began to open. It first opened about five o'clock P.M., continued open all night, and closed about ten A.M. on the following day. On that day (April 11th) it began to open about two o'clock P.M., having gone through its various stages, reached its full expansion about six, when it was at its greatest beauty; it continued thus for about four hours, when it began finally to close preparatory to seeding. On the third morning the remains of the flower were partly under water, and gradually sank lower, but the flower-stalk continued to lengthen for some time afterwards.

"I may here observe that, on the morning of the day on which the flower first expanded, the bud was seen to move itself as far as possible in one direction, then back again in a semi-circle, and finally raised itself out of the water to rest and expand upon the young leaf, with which it was produced. Just before opening, and during the whole of the first night, the flower is very fragrant—the perfume being that of the Pine Apple; this odour is distinctly perceptible outside the house.

"At the present time (May 6th) the tenth flower is expanded; it is 12 inches in diameter. I find that each succeeding flower increases in size. There are now four more flower-buds visible—in fact, with every young leaf, comes its attendant flower-bud. Since the 10th of April the *Victoria* has been in flower for two successive days, missing the following one, with very little variation. The largest leaf is now 5 feet in diameter, with an inch and a half of its edge turned neatly up, and forming a beautiful rim; the under surface being of a purplish-red colour, and contrasting well with the deep green of the upper portion. The formation of the under side of the leaves is very beautiful; the large veins near the centre are about 2 inches deep, gradually shallower towards the edge, and connected with each other by means of smaller ones, altogether forming a strong network, the whole being armed with powerful spines.

"The growth of the plant has latterly been so vigorous, that it has become necessary to enlarge the tank to nearly double its original size. This alteration is now being made; when completed, the deeper portion of the addition will be planted with the different species of *Nelumbium* now advancing towards a flowering state; and at the corner will be placed *Nymphæa rubra*, *N. cœrulea*, *N. dentata*, and *N. odorata*, most of which are already in flower, and are found to grow at a surprising rate

in the temperature kept up for the Victoria. Altogether, I hope to form a very beautiful, fragrant, and interesting group of tropical and other aquatics."

ROYAL HORTICULTURAL SOCIETY.

AUGUST 27.

FLORAL COMMITTEE.—The majority of the flowers exhibited to-day were Dahlias and Hollyhocks, and again the florists had it pretty well to themselves. The heat of the day was intense, and the great Reading Flower Show coming off on the morrow, may have, probably, deterred some exhibitors; but there was not, certainly, a very large display. The gardens looked very nice; but who can calculate the cost at which this is attained? On one of the parterres were five men at work, and another superintending, the men being armed with a pair of scissors each! to cut off dead leaves, dying blooms, and straggling shoots. Surely this is bedding-out run mad, and that at a time of the year when not a soul—i. e., of the *beau monde* is in London, when Rotten Row and Kensington Gardens cannot boast a single horseman or horsewoman, and to be seen in the parks is as one of the deadly sins. Well, well, "soon come, soon gone" is the old adage; and if you want a good recipe how to get rid of a redundancy of cash, I say go to the ———. Well, I must not be personal—but to that Society which has always been famous for its feats in that line. But I must get back to the Committee.

Mr. Bull exhibited the following plants, *Sonerila elegans*, *Xanthosoma maculata*, an Arum-like plant with a pretty bloom on the stalk, and the margin of the leaves white; *Polia purpurea*, with very deep metallic lustre on the leaves, almost as if a careful housewife had blacklead it—a Label of Commendation was given to this; *Maranta orbifolia*, *Phyllagatha rotundifolia*, and *Azalea Duneani*.

Mr. Chater, of Saffron Walden, exhibited a collection of Hollyhocks, amongst which were *Premier*; *Lady King*, a crimson flower, for which a Label of Commendation was awarded; *Grandissima*, *Lady Paxton*, *Bianca*, *Ne Plus Ultra*, a fine lilac purple flower—for this a Label of Commendation was awarded; *Queen Victoria*; *La Reine Blanche*, *Carminata*, *Countess Russell*, soft, pink, fine guard petal and very full flower—to this a First-class Certificate was given; *Triumphans*, *Glory of Walden*, *Shotgrove Perfection*, *Agenora*, and *Invincible*, a fine salmon rose—this also received a First-class Certificate.

Mr. W. Paul, of Cheshunt, Waltham Cross, sent four seedling Hollyhocks of inferior merit—*Paris*, *Earl of Shaftesbury*, *Niobe*, and *Euphrosyne*. And Messrs. Downie, Laird, and Laing, three trusses, *Primrose Gem*, *Lady Dacres*, a fine salmon-coloured flower—for this a First-class Certificate was given; and *Golden Fleece*. They also sent a Dahlia, called *Alpha*, of inferior merit.

From Mr. Charles Turner, of Slough, and Mr. John Keynes, of Salisbury, came a large number of Dahlias, some of which had been exhibited before, others now for the first. By the former gentleman were exhibited, *Cygnat*, a light lilac flower of good properties; *Una*, *Charlotte Dorling*, a shaded purple of attractive character, to which a Label of Commendation was given; *Captain Harvey* and *John Spencer*.

Mr. Keynes had *Fair Maid of Bath*, a light tipped flower, much in the way of Caroline, very delicate and pretty—a Label of Commendation was given to it; *Tiffany*; *Prince Arthur*; *Imperial*, a large, well-built amaranth purple, of fine properties—this, too, received a Label of Commendation; it was an exceedingly fine flower; *Fanny Purchase*; *Oscar*; *Goldfinder*, a large, yellow tipped flower, perhaps too coarse; *Royal Purple*, and *Maria Carter*, white, tipped with deep carmine—this received a Label of Commendation, not for its first-rate properties as a florists' flower, but for its very attractive colour.

On the whole it seemed to me that the advance this year in Dahlias is as yet not very great; but it is far too early to judge, and doubtless the 11th will produce some fine blooms.

From Messrs. Low & Son came some very interesting things. *Anacochilus Bullenii*, from Borneo, a beautiful species of what the Cingalese call the King of the Woods, from the intense beauty of its markings. A note accompanied it to say that a week ago it was on board the Delta, showing how admirably it had been forwarded: for this a First-class Certificate was awarded. Also *Arthrobotrya articulata*, a very beautiful stove Fern from the same country. This also received a First-class

Certificate, as did *Pentstemon Lobbianum*, collected by Mr. W. Lobb in California, a small, shrubby-looking plant, with yellow flowers and sweet scented. Its locality indicates hardiness, and if so it will be a great addition to our hardy plants. Also *Pentstemon spectabilis* from the same country, no improvement on existing kinds closely allied to it; and *Polia purpurea* from Java, the same as exhibited by Mr. Bull, and receiving the same award—a Label of Commendation. They also had an unknown Orchid from Ceylon, of no apparent merit.

Mr. Richardson, of East Sheen, sent *Geranium Portobello*, inferior to many at present in growth. A seedling Allamanda was also exhibited, but inferior to cathartica.

From Messrs. Charlwood & Cummins came some very large blooms of *Helianthus californicus*; and from Messrs. E. G. Henderson & Co., several Variegated Geraniums, *Mrs. Pollock*, *Sunset*, *Delicata*, and *Aureum bicolor*; the first very striking in foliage, green, with a broad belt of dark red crimson, and externally belted with yellow. The second received a Label of Commendation, its habit seemingly not so robust as *Mrs. Pollock*. The third was a neat-habited white-variegated flower with pink bloom, and was considered worthy of a Label of Commendation. As pot plants these tricolor-zoned Geraniums are very pretty, but they hardly keep their character out of doors, many which gave bright promise having grievously disappointed afterwards. Wherever they can have a little protection, they are very showy and beautiful.—D., Deal.

MR. MARCH'S DESIGN FOR TABLE DECORATION.

WITH your permission I will make a few remarks in reply to a letter in your last Number, signed "J. R.," upon the subject of the flower-glasses made to my design for the June Exhibition at Kensington, and by the aid of which I had the good fortune to gain the first prize for table decoration. The decision of the Jury and the approval of the press have failed to satisfy your correspondent in the face of certain practical difficulties which he conceives to exist, but which I will undertake to prove are imaginary.

He remarks that an object to be really beautiful must also be useful. So said Burke in his famous essay on the "Sublime and Beautiful;" and on this ground we will argue this question, though I cannot concede the ground so far as to agree with the retired citizen, who objected to the Russian service because he "liked to see his vittles." In the name of utility "J. R." brings forward two objections to the "prize design," that it is too brittle for wear, and that it obstructs the view and conversation at the table. Let me explain, that the set of glasses exhibited in June were made up in a temporary manner from such materials as were at hand, and it is true that the glass stems then used were too slender for use and ill adapted for "locomotion." Messrs. Dobson & Pearce, of 19, St. James' Street, have since carried out the design in a practical way, and to my mind the glass stems have lost none of their elegance by being made stronger—so strong that nothing short of an Irish row or a drunken servant should break them, certainly not the vibration or "table rapping" at the most uproarious of public feasts. The pieces also are fitted separately, so that the glasses can be moved and packed with the greatest ease.

The second objection raised is, that the flowers when arranged will obstruct free view and conversation at the dinner-table. It was really to obviate this very usual defect in epergnes and table decorations that I ventured to make the innovation. Most of these are handsome pieces of plate two stories high. Cupids and acroll-work lead to the first floor, where there are branches for lights, or certain receptacles for fruit and bonbons. On the attic floor there is usually a glass in which the butler marshals his cut flowers, or inserts a sponge-cake tastefully fluted, and decorated for the sacrifice with floral attributes. Next to the centre ornament are generally silver branches for lights, and then two well-grown Fuchsias or Geraniums in silver wine-coolers: this is a very common arrangement at a London dinner party, and the plants and fruit-receptacles do materially interfere with the line of vision. A friend of mine will insist that the true use of the old epergne is to hide the ugly people opposite; but I will take a more cheerful view and assume that every one at the party is worth seeing and hearing. Well, the flower-glasses in question, which are chiefly made for dinner parties, are 24 inches high, reckoning from the

tablecloth to the bottom of the upper glass; and as the line of vision of a person 6 feet high, sitting down, is about 19 inches from the table, there will be no obstruction to the view, with the exception of a rod of glass, the lightest and most transparent of substances. If the dinner party were given in Patagonia instead of Belgravia or Tiburnia, then I should recommend a couple of inches more; but in the case of ordinary mortals, who in stature are less than Ajax, the proportion will be found correct.

Let us leave the objections and consider the possible advantages of the idea. If it continues to hold its ground, it will be, I think, for some of the following reasons:—That in these glasses the flowers play the sole part, unaided by metallic Fauns and Cupids, which are not of their kind. In a well-arranged decoration of this sort, you have a Fern leaf, or Ivy border, a gently-rising mound of moss, flowers and Ferns—poetic names! aye, and poetic things. The moss of vivid and varied green, the few flowers above it, bright and distinct. You have a glass stem around which you train some light twining branch; and you have another mound of moss and flowers, smaller than the lower, and more delicately treated, from which fall a few light sprays of drooping foliage. There is considerable space to cover, and a proportionate margin for taste, in shape and colour; it will require a very æsthetic butler to arrange these glasses at once, like Sir Joshua Reynolds before the pictures of the Vatican. He must first feel “like a little child,” he must forget his spongecake; or, perhaps, after all, the lady of the house must intervene in the first trials with her superior taste and culture, and this will be a very great advantage.

Another gain I think is this, that glasses, or flower-holders, of this kind, in which you see nothing but the flowers and foliage, are quite as ornamental in the drawing-room as on the dinner-table; and this is not the case with ordinary epergnes and wine-coolers. Then, it must be a relief to servants to clean such simple smooth things, after the labour of keeping pure the heathen mythology in frosted silver. It is only yesterday that the butler in a friend's house exclaimed, with real feeling, “I wish missus would get a few artificials, they look *very* pretty, and them naturals do play old Harry with the plate!” Lastly, you do not require to send these articles to your banker for safety when you leave town, nor to draw upon him for the purchase money, which is a trifle compared with other ornaments of the same calibre for size and effect.—THOS. C. MARCH, *St. James' Palace*.

PLANTS FOR A LOW NORTH WALL AND BORDER.

WOULD Roses do well near Dublin on a north wall—that is facing the north, under the drip of Lilac trees, which are planted in my neighbour's garden? and if so, which Rose would be most suitable? and if not, what other plant would do to cover the wall, which is only 4 feet high, and the border 3 feet wide? I should feel still further obliged if the Editors would say if we plant a line of scarlet Geraniums in that border next year, would they do under the drip? Had one or two Flower of the Day there this season, which seemed to do very well; but without advice would be afraid to plant so many as a whole line, which would be about 50 feet long.—A SUBSCRIBER.

[No climbing Rose, or any other climber or trailer, or any one plant will ever establish itself under overshadowing Lilacs. The roots of the Lilacs must first be cut, and the cutting be low as the deepest of the Lilac roots. All the rooty soil must then be got rid of, and fresh soil put in, and an open division be left between the new soil and the old Lilac roots. For one plant, however, or for a few, there is an old way of ours which does as near to the best as anything of a palliating character can do, and that is to sink empty tar barrels, just like plunging a pot in a border, each barrel to rest on three bricks to keep an open space below, and so keep roots from getting into the barrel, with four-inch or five-inch-bore holes at the bottom for drainage; the soil for the barrel to be the best that can be had, such as for a Myrtle or Orange tree; the top of the barrel to be just level with the surface, and no more, to plant the Rose, Jasmine, Glycine, and what not, and to attend to them properly for the first seven years, which is the whole secret, and the only part which many people forget. *Félicité perpetuelle* is the best climbing Rose for such a plan and place, and *Ruga* the next best, for we have tried their whole generations, and these two did the best in the long run. But recollect another essential to success—namely, that

all climbing Roses in all places, and under all circumstances require, for the long run, that every bit of their wood be pruned to close to the ground the first two years after planting, and in many instances for the three first. With a good border, free from the Lilac roots, scarlet Geraniums will do very well under the shade of trees on one side of them, or just over them, but no more, as is testified by many flower-beds doing handsomely at Hampton Court under Yews, the oldest and largest we ever saw in a flower garden.]

WORK FOR THE WEEK.

KITCHEN GARDEN.

AT the earliest opportunity earth up the Broccolis, Savoys, and all other crops that require it. Remove Peas that are mildewed immediately they are done with. Destroy caterpillars that infest the Brassica tribe before they do much mischief. *Artichokes*, cut down the flower-stems, and remove the dead leaves from the old plantation; those made last season will probably now produce a few heads. *Cabbage*, continue to plant out for Coleworts at every favourable opportunity. Prick out the young plants intended for the main spring crop. *Cucumbers*, those intended for house-culture to be now potted into their fruiting-pots; the soil for the purpose to be composed of equal parts of loam, leaf mould, and rotten dung. A good drainage to be given, the health of the plants depending in a great measure upon this point. Allow one or two shoots to grow to the full extent of the house before being stopped. *Leeks*, plant out the thinnings of the seed-bed as soon as the weather is favourable. *Onions*, we have lately seen the Tripoli of an amazing size from last autumn sowing. It has done better than any other sort, of which there were several sown and planted at the same time, we, therefore, strongly recommend it to be sown immediately. *Turnips*, the last crop for the season to be sown as soon as the weather is favourable for the purpose. Thin the advancing crops. *Vegetable Marrows*, keep the plants well supplied with water during the present dry weather; cover the ground about them with short grass, or litter of any kind if that cannot be procured.

FLOWER GARDEN.

If any beds under trees appear to be suffering for want of water give them a good soaking at once. See that late Holly-hocks are liberally supplied with water, which will greatly assist in prolonging their beauty. As we may soon see indications of the approach of frosty nights, it is advisable to be prepared with something with which to cover any of the beds liable to be injured by slight frosts—such as *Heliotropes*, *Ageratums*, and the variegated Geraniums, the foliage of which is very readily injured.

FRUIT GARDEN.

Go over all the Peach and Nectarine trees which are observed to be growing too freely, stopping all the stronger shoots; and those that were treated in this way a few weeks ago should also be looked over, again stopping a further portion of the shoots, if necessary, to prevent the formation of gross wood. Also, go over the Pear, and indeed all trained fruit trees, removing all superfluous wood, so as to expose the trees to sun and air as freely as possible, which will be of service towards getting the fruit-spurs and bearing wood well ripened before winter. Remove the mulching from wall-fruit trees; for the fruit is seldom well flavoured if the roots are excluded from the action of sun and air during their period of ripening. See that the Strawberries in pots for forcing next season are attended to, placing them in an open sunny situation where they will have all the light possible, and do not allow them to suffer for want of water at the roots.

STOVE.

Where there is but one house for the accommodation of tropical plants some care and attention are necessary at this season to manage them properly, as some, having completed their season's growth, require to be kept cool and rather dry, in order to ripen the wood; while others, in free growth, require to be encouraged with warmth and moisture. If there is no convenience for removing to a cooler house the plants that have made their growth, they should be placed at one end of the stove, keeping them sparingly supplied with water at the root, and giving air rather freely, to prevent any attempt at a second growth; and those requiring to be kept warm and moist to be placed together at the opposite end of the house, giving but

very little air, and keeping the atmosphere moist about them. See that everything is free from insects, and keep the foliage of Ixoras and other such things clean by washing with a sponge and soapy water when necessary.

GREENHOUSE AND CONSERVATORY.

The Chrysanthemums to be liberally supplied with water. The Violets to be potted or got into their blooming-frame before the middle of the month. Luculas, Acacias, and other winter-blooming plants growing in the border of the conservatory to be freely exposed to air and light to ripen the wood. Attend to Mignonette by thinning it in time, and sow another crop. Pot Ten-week Stocks for early blooming, and also a few annuals for the same purpose. Tropaeolums of all kinds to be started, and no time to be lost in procuring and potting such Hyacinths, Tulips, and other such bulbs as may be required for forcing.

PITS AND FRAMES.

Continue to give attention to the propagation of bedding-out stock. Cuttings that are sufficiently rooted to be potted off at once, keeping them close and moist until they become established. Those that have been potted off some time, and have got established in their pots to be gradually inured to exposure to the open air, stopping the shoots to keep them dwarf and stocky. Plants that are not very strong to be shaded from bright sunshine for a few hours in the middle of the day, or placed in a shady situation out of doors; let them have the benefit of night dews if kept under glass, and protect them from cold drying winds if removed from under shelter.

W. KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

SOWED a second lot of Spinach, in case the first should be too strong before winter; also Turnips, Radishes, and Onions, the latter alike for salads, and to come in in spring early. Sowed also Lettuces and Cauliflower for late winter and early spring supply, sowing the first especially rather thick, watering with a rose, and, when settled, covering with dry soil. Some Lettuces require thick sowing this season. For general purposes, this and another sowing should be chiefly of Blackseeded Brown Cos, Blackseeded Brown Cabbage Lettuce, and the Hardy Hammersmith. Where room can be spared, such sowings stand remarkably well at the bottom of a wall if the ground was rather hard, and merely hoed and raked before sowing. The hardness of the ground causes the plants to come firm and robust, and as they do not grow fast the winter frosts have little effect on them. Plant them in deep-dug rich borders, and they will get so succulent that they will go to a certainty before the first sharp frost that comes. Those thus sown and thinned out sufficiently on such a hard border, will stand much better than transplanted ones.

WATERING AND MULCHING.

Watered as far as we could Cauliflowers, Cucumbers, Peas, and Beans, giving a little where there seemed the signs of suffering, as water is now getting like gold or fine port wine with us, and generally either mulched directly afterwards, or threw some dry soil over the place watered. A correspondent wants to know why we watered the half-filled trench of Broccolis when planted out, as he always watered his on the surface and had no reason to grumble as to the results. Well, quite possibly not. What is best administered is often the best, and had we a nice stream of water always at command, we might not be disposed to be always asking ourselves how we could use the water with the best effect and with the least waste. But be the water plentiful or short, we believe that the plan recommended has reason on its side. By watering immediately over the roots we were sure the roots and the ground round them were well soaked. When water is communicated at the surface after the job is finished, we may make sure of the surface soil being wetted; but unless our friend wields the pail himself, he cannot be so sure that the water has actually reached the roots, as the flagging of not a few next day might tell him. Again, if even water is plentiful, economy in labour is something, and the roots being well soaked, the moisture was kept there much longer owing to the dry surface of earth put on the top. If the surface was wet, a burning sun as we have had this last week would soon raise all the moisture by evaporation, and the water-can would have to be applied once and again before our plants watered as directed would show any signs of distress. And, once more, though not of much importance in such weather as we have had,

still it is worth noting, that all plants fresh planted are stimulated by the heat of the soil, and as evaporation from a damp surface always cools that body, we thus secured moisture and heat to the roots, and took care that the soil should not be cooled by a damp evaporating surface. Of course, there would be a radiation of heat at night; but that would be more than neutralised by the absorption of heat during these hot days, and yet the roots would be luxuriating in a moist, warm-enough medium. Wherever water is scarce, then especially it may be of much importance to know how to keep it in the ground after you have given it. Without such means, or others of a kindred nature, as shading and mulching, it would be do, do, for ever doing, and never done.

CELERY EARTHING.

We almost begin to get timid for our Celery, as dryness is the great cause of bolted heads in early Celery, and the titbit system of earthing-up is one great cause of producing that dryness. For getting nice clean heads, nothing is better for earthing-up than finely sifted ashes placed next the stems. In beds we place two boards, one on each side of the row as close as they will go, drop the sashes close inside the boards, and fill up then with well-chopped soil in the usual way. It is still easier done with single rows, and effectually keeps slugs and worms at a distance. Lime is frequently used for such a purpose; but, if mild, it is hardly so good as ashes, and, if acrid and hot, it frequently leaves marks on the tenderer leaves.

POT HERBS.

Cut Mint, Marjoram, Basil, and other herbs for drying. They are best when, after being dried in the shade, they are firmly pressed into cakes, and then kept in a cool, airy place. Potted off Basil, &c., for autumn and winter use in the green state. Cut down another breadth of Parsley, that the shoots may be fresh and close to the ground before winter, leaving only a little bit for present use. Will transplant some ere long, so that it may be covered up in severe weather. If there is any person that deserves commiseration, it is a gardener who cannot find Parsley for the artiste of the kitchen. In some grounds it will not do if left where it is sown; but it will thrive pretty well when transplanted when rather young. Now is a good time for drying a quantity, and keeping it closely pressed and well-corked in bottles, in case it should be short in winter.

MUSHROOM-BEDS.

Slightly swept with a hair-broom the Mushroom-beds under the thatched shed, which are still bearing abundantly, and covered with hay, which in this dog-day weather is kept moist to produce cold by evaporation. If there is much more of the heat we shall put some branches loosely over the bed, so that there shall be a little space between the soil and the covering; as, when the covering gets heavy from moisture and rests directly on the bed, the spawn is apt to run into the covering. Beat down the first bed in the Mushroom-house, and slightly covered it, and spawned a second one. Examined the bricks that were spawned eight days ago, and were built in a heap in an open pigeon-holed way, and covered all over with litter. If the weather gets colder we shall place a little warm litter round at the bottom. At present the weather is hot enough, and the spawn is just beginning to run. What we have been using all this season was made three years ago; and when there is a heap to go to we do not scruple in putting fairish-sized bits into a bed.—R. F.

TRADE LISTS RECEIVED.

A Descriptive Catalogue of Grapes, by Thomas Rivers, Sawbridgeworth Nurseries. This is prepared in the same way as Mr. Rivers' descriptive catalogue of Fruits. It is divided into five classes—1, White Muscat Grapes; 2, Purple and Red Muscats; 3, Muscadine and Sweetwater; 4, Purple; and 5, White Grapes. The catalogue is a very full one, contains a great many novelties, and forms a worthy companion to Mr. Rivers' other catalogues.

Catalogue of Flower Roots. F. & A. Dickson & Sons, Eastgate Street, Chester.—A well-selected list of Hyacinths and other bulbs, arranged not only according to the colour of the flowers, but, in the case of the Gladioluses, according to their fitness for clumping, parentage, &c.

A Catalogue of Bulbous Flower Roots and Tulips, by Charles Turner, Royal Nurseries, Slough.—In this catalogue besides the usual lists of Dutch Flower Roots, such as Hyacinths, Polyanthus, Narcissus, Crocus, Anemones, Ranunculus, &c., all of which are

well represented, we have a list of those magnificent show Tulips which excite the admiration of all visitors to the metropolitan spring shows. We believe Mr. Turner is now almost the only trade grower of this noble flower, the value of which can only be judged of by glancing over this catalogue.

A Catalogue of Hyacinths and other Bulbs, Cinerarias, Ferns, &c., by William Dean, Shipley, Yorkshire.—This is a very judiciously selected catalogue, and does not perplex the purchaser by presenting a long list of names. It is preceded by a few useful remarks on the cultivation of these flowers.

TO CORRESPONDENTS.

PENTSTEMON SEEDLING (Barthol).—Better than some, but not equal to others in cultivation. Between *P. Hartwegi* and *P. gentianoides* there are many similar results of cross-breeding in cultivation.

PLUM FOR SOUTH WALL (R. Toole).—If you have room only for one tree we should select the Jefferson's, for although the fruit is not quite so luscious as that of the Green Gage, yet it is a more certain and more abundant bearer.

HORTICULTURAL SOCIETY'S GARDEN (J. Sudely).—The gardener is Mr. Eyles, a letter directed to him at the Society's Garden, Kensington Gore, would reach him. We can give you no information in reply to your other query.

SCALE ON FERNS (Harrie).—The scale insect can only be effectually removed from Ferns by perseverance in cleansing the plants. The insects, old and young, require to be dislodged with a small flat-pointed stick, and the surface carefully washed with water and soft soap, or with a weak solution of Gishurst, either of which should afterwards be cleaned off with a syringe. The plant you enclosed is *Origanum sylvestre*.

HEATING A SMALL PIT (A Subscriber).—As far as we understand your case, you could not well bring a fire from either of the grates in the room; as, independently of the trouble, your fire would have to be so high in the pit, or rather the house, as the floor is already 3 feet lower than the grate, and the fire would require to be considerably higher than the grate to give you any chance of drawing well, and altogether it would be a troublesome expensive affair. If a small boiler were placed behind the fireplace there would be a similar difficulty, though not equal in extent, as, though the pipes must be as high as the boiler, they would be more easily managed than a fire. But then you might want a good heat in these pipes, when you did not care about keeping up a fire in the grate. Altogether, in such small places and so far apart from each other, the cheapest and best mode where you merely wished to exclude frost, would be to have a small iron stove, or a small Arnott's brick stove, placed in each house. The latter would be the best; but the former could be taken out as soon as the frosty nights were past. These were described lately.

GARDEN VERMIN (H. W. Westley).—Under the name of "worms" you seem to include caterpillars and all other garden insect-marauders! Hand-picking is the most effectual mode of clearing the Cabbages from caterpillars. So far from the Elder tree promoting the occurrence of such pests, no insect feeds upon that tree, and an infusion of its leaves kills many insects, and rubbed over a horse protects him from flies. The "vermin" upon your Black Currant trees we presume are aphides, or green flies, the best destroyer of which is tobacco smoke or tobacco water. It is impossible to reply satisfactorily to such non-specific inquiries.

GYTNUM (James Bruce).—That this (sulphate of lime) is a fixer of ammonia is well known, and is used for the purpose scattered over stables and mixed with dung-beaps. Although it absorbs much water, yet there is a limit to its power of absorption; so it would not do to "fill drains with this plaster."

PROPAGATING-PIT (Nottinghamensis).—There has been a very great deal said in late Numbers about pits and their arrangements. To make a perfect propagating-pit you had better have pipes for bottom heat and pipes for top heat. The top of the pipes for bottom heat should be at least 3 feet from the glass. The bottom of the bed may be rammed hard to within 3 inches or 4 inches of the pipes, and a hollowed bed of concrete placed beneath them, the upper layer being of rough sand and lime, so as to level smooth. Between and around the pipes place brickbats, stones, &c., as rough as possible; to be followed with rough gravel, and finished with fine gravel, which will make the bottom of your bed. This covering of stones and gravel should be from 4 inches to 6 inches deep. The first will do well. On this place 15 inches of soil, which will leave you from 15 inches to the glass.

WATERING LAWNS IN DRY WEATHER (A. T. S.).—1 lb. of muriate of lime and 4 ozs. of guano to every 30 gallons of water, applied to a lawn in dry weather, promotes its verdure. Chloride of lime (bleaching powder), will do instead of muriate of lime. If you use nitrate of soda instead, as you propose, 1 lb. to each 30 gallons of water will be enough; but we have no experience as to its promoting the verdure of grass in very dry weather.

GARDENING PERIODICAL (Amateur).—The work you mention ceased to be published, we believe, some weeks since.

NAMES OF PLANTS (A. C.).—1, *Garrya elliptica*; 2, *Zauschneria californica*; 3, *Sibthorpia europæa*; 4, *Balsamita vulgaris*; 5, *Saponaria officinalis* fl. pl. (*S. Devon*).—1, *Lythrum salicaria*; 2, *Achillea millefolium*; 3, *Tanacetum vulgare*; 4, *Eupatorium cannabinum*. (*A Reader*).—Your Fern is *Asplenium ruta-muraria*. (*From Newcastle*).—1, *Veratrum nigrum*; 2, *V. album*. (*A. R.*).—Your "bulb" is not a bulb but a tuber. It was not a fresh specimen, and we do not profess to name dried specimens, but we happen to know yours. It is called *Gespera elongata*, and requires exactly the same treatment as any of the new *Gloxinias* or *Achimenes*.

FLOWER SHOWS FOR 1861.

SEPTEMBER 4th and 5th. CRYSTAL PALACE. (Dahlias, Cut Flowers of other descriptions, and Fruit.) Sec., W. Houghton.
SEPTEMBER 5th. WORKSOP. (Floral and Horticultural.) Hon. Sec., Mr. Geo. Baxter.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other Cut Flowers.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STONE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

CRYSTAL PALACE POULTRY SHOW.

THE Directors of this great undertaking are equal to their work; but we advise the editor of "How to See Paris in 48 Hours," or Monsieur Thiers, who wanted the Chancellor of the Exchequer to give him a *petit quart d'heure* to explain to him the financial system of England, to write the visitor's guide to the Crystal Palace during the Poultry Show, and how to see it in a day. Just imagine one from the lower parts of Devonshire, a dear lover of Game fowl. He is at the door at ten when it opens. The poultry—Performance on the great organ—Lecture on the Vertebrata and the Gorilla—Performance by the C. P. C.'s band—The large fountains—Volunteer bands. One has told him to be sure to see the pictures; another tells him of the courts. The ensemble of the place occupies the mind, and it is truly an *embarras de richesses*.

We were much gratified when listening to the lecture for a few minutes, the only time we had to spare, or to give to it, to find the hold such subjects are taking of the public mind. On the same day there was in the *Times* a column entirely occupied by advertisements of subjects connected with zoology and natural history. We were struck with the mastery of the subject possessed by Mr. Hawkins; but we were also strongly impressed with the great facility afforded to him by his admirable skill in sketching the objects he sought to explain. It struck us that in the Show beneath the only difference was the illustration was a living one; but the numbers who listened to the lecture, and who thronged the Exhibition, proved the lively interest taken in these matters. If other proof were necessary it could be found in the fact a Dorking cock was claimed at £6, a pen of Cochins at 20 guineas, and another at £20. Every Show brings us new names among the successful, and every now and then one of the early ones rises again after it has been thought he had given all up.

Many speculations were hazarded as to where the Show would be held after the destruction of the wing that had become identified with it; but it is one of the notable facts of the Palace that its resources are only found out and developed as accidents and necessities call them into action. By putting a few of the agricultural implements out of doors, and by putting some more close together, an excellent place was found. It has an entrance from the garden; it is lofty, and it is on the ground. It is in the northern part of the Palace.

As it is admitted on all hands that it has not been a favourable season for rearing chickens, we were not prepared to see so many beautiful specimens as we did in many of the classes. Some of them will always be weak at a Chicken Show; there are certain breeds that are not fit to exhibit at an early age—Golden-spangled birds, for instance; Hamburgs and Polands. Many a one who admires them in December would hardly believe they were the birds he condemned in August. These want adult plumage. Duckwinged Game fowls, and Bantams also, want age. The publication last week of the prize list dispenses us from referring to many names, and leaves us free only to mention the classes and such pens as were unusually meritorious.

The *Spanish* were very good; but we fancied there were birds there that were not fairly shown. It is a pity, because it opens a question we thought settled—viz., that trimming should lead to disqualification. Messrs. Rodbard, Martin, and Fowler showed very good birds.

Dorkings were very numerous. If we were asked to name the best pens we should say Mr. Vernon's cock and two pullets, Mrs. Blair's and Mr. Lewry's pullets, and Captain Hornby's single cock. This bird was claimed. Many of our best breeders and exhibitors were represented in these classes, and it was, therefore, no child's play to win against them. There were eighty-two pens. The *White* still show large and perfect birds.

We can speak in the highest terms of praise of the next class—*Buff and Cinnamon Cochins*. It was full of beautiful chickens. What must the competition be when such names as Tomlinson,

Cattell, Stretch, Musgrove, Fookes, Fowler, Herbert, and Blair go to the wall? But it was so, and Mr. Kelleway may be proud of his exploit. He will, not, however, take his triumphant birds home: they were claimed. The pullets in the *Grouse* and *Partridge* classes were better than the cocks; these latter had not perfectly black breasts, if we except one pen belonging to Miss Musgrove. This was one of the best pens we ever saw of any colour. Twenty guineas would not save it, it was sold. It is a pity exhibitors are not more careful in selecting the cocks they send with reference to the colour of the breast. With the exception of the two prize pens, the *Whites* call for no particular notice, except that some were most extravagantly vulture-hooked, more like Ptarmigans in that particular than Cochins. Miss Musgrove showed a very fine bird in the Single Cock class.

*Brahma Pouter*s not only justify the wisdom that gave them a class by their entries, but the type of them is known and admitted. The specimens shown were very beautiful. Lady Louisa Thynne's pen and Mrs. Fergusson Blair's single cock were deservedly distinguished.

Game Fowls.—These birds form in themselves a little show, and it can be the more appreciated, because, thanks to Mr. Houghton, one pullet only need be shown. By this rule many sights are avoided that were not always desirable; and, seeing the difficulty there is in getting two pullets and a cock to dwell together in peace and amity, we think the discretion has been a wise one that limited the entry to one. We fancy that, taken as a whole, these birds were rather more backward than they have been of late years. There were new names in this class. Mr. Fletcher was very successful, taking four prizes. The Hon. W. W. Vernon's *Duckwings* were beautiful. Mr. Rice Clayton's *Piles* were also very excellent specimens. Mr. Horton deservedly won in the largest class—i.e., *Black-breasted Red*.

We must speak in terms of very high commendation of the *Golden-pencilled Hamburgs*. We have seldom seen a class so good, and nine pens deservedly figured in the prize list. Mr. James Munn's birds and Mr. Smith's were of a high order. Mr. Martin showed good *Silvers*, and Mr. Oxley deservedly was at the head of the "Single Cock" class. The *Golden-spangled Hamburgs* were not so good as the *Silvers*. These latter would seem to come to maturity sooner than the others. Lady Julia Cornwallis's pen were in beautiful condition.

The same may be said of *Polands*—the *Golden* were so badly represented that the first prize was withheld, while the *Silvers* were most excellent. Our readers will be glad to see Mr. G. C. Adkins winner of both prizes in this class, and also in the next for cocks.

The *Malay* chickens always seem better here than elsewhere, and the present was no exception. Mr. N. Sykes took both prizes; had there been more some of the highly commended would have deserved them.

The "Variety" class was a weak one.

The *Bantams* were very good, and afforded a continuous triumph to Mr. Harvey Dutton Bayly. He took four first and a second prize. Miss Ella Hodson and Mr. F. Angel, nevertheless, deserve mention. The Rev. P. W. Story took both prizes for "various" Bantams, one pen of feather-legged *White* chickens being very smart birds.

It has been a bad Duck year, and the large prices they made for the table, and which were quoted in our columns at the time, would seem to account for the paucity of entries in the *Aylesbury* class. Mrs. Seamons sent four pens, and they all figured in the prize list. The weights of the four pens were 21½ lbs., 21½ lbs., 21 lbs., and 19½ lbs. We were glad to see Mrs. Fergusson Blair's enterprise rewarded by a first prize for *Rouen* Ducks, hard run in an excellent class by Mrs. H. Fookes. These two pens weighed 16½ lbs. and 14 lbs. There has been no greater success of late years than the institution of a separate class for *Black* Ducks; they are numerous and beautiful. We do not despair of seeing these brought down to what they originally were—the size of the Widgeon. The *Call* Ducks in class 41 were very good.

Mr. William Mansfield took both prizes for *White Geese*. His birds are in every respect excellent, and weighed 46½ lbs. and 38½ lbs. We generally look for the *Grey* and *Mottled* to be much heavier than the *White*, but we were disappointed. It was in weight only. We were much pleased at Mrs. Blair's success with a pen weighing 48 lbs., Mrs. Seamons following with 47½ lbs. The Highly Commended pens weighed 42 lbs. and 44 lbs. Thus goslings in August weighed from 14 lbs. to 16 lbs. each, while 12 lbs. were formerly the average for large Geese.

The same remarks hold good for *Turkeys*, which brought all

the prizes to the Rev. T. L. Fellowes. The poult shown weighed 23½ lbs. and 21½ lbs. There was a large show of good *Turkeys*.

The varieties of *Aquatic Birds* produced some very pleasing specimens—Sebastopol Geese, Black Swans, White-eyed Ducks, Common Swans, Spur-winged Geese, &c.

Assuming that the class for *Pheasants* is an experiment, we advise that it be discontinued—at all events in the summer. One pair only was shown. The prize for *Guinea Fowls* should also be given up. It savoured almost of the ridiculous to award a prize of £1 to two little miseries not worth 5s. We think a discretionary power may safely be left to the Judges to give a prize to any new variety of Pheasant, or in any case where there is competition. It will always be an unsatisfactory class. The birds do not show themselves; they cannot be handled, and they always remind us of Cæsar and Pompey, "very much alike, specially Pompey." Provided the birds are adults, and in good feather, there is no difference in them. At this season of the year they are either moulting or soft-feathered, and not fit for exhibition. The prizes offered for these would be well bestowed in augmentation of those for the Dorkings or Game Bantams. These latter from their entries and popularity are entitled to a third prize.

Our task, so far as the review of the classes is concerned, ends here. We are pleased to be able to say the attendance was very large, and the sales were unusually numerous. The railway was also attentive this time, and those connected with the Show were spared the annoyance of arrivals all day, and long after the Judges had commenced their labour. It is so manifestly the interest of the railway companies to encourage these gatherings, that it is always matter of surprise to us when there is good ground of complaint against them. Mr. Houghton was indefatigable as usual, and richly deserved his success. He is entitled to the thanks of amateurs in general.

We will conclude with a list of those whose birds received commendations. We published the list of prizetakers last week.

SPANISH.—Highly Commended, W. R. Bull, Newport Pagnell, Bucks; J. R. Redbard, Wrington, near Bristol. Commended, F. Crook, Hampstead Road.

SPANISH.—Highly Commended, C. Atkins, Sewer Cottage, Thames Bank. Pimlico; J. K. Fowler, Prebendal Farm, Aylesbury; T. Sheen, Holborn Hill, Commended, W. Toby, Brompton.

DORKING (coloured).—Highly Commended, Sir J. Paxton, M.P.; Mrs. F. Blair, Inchmartine; J. Frost, Suffolk; J. Leary, Cuckfield; Mrs. E. Tudman, Whitechurch. Commended, Lady L. Thynne, Muntham Court, Worthing; Sir J. Paxton, M.P.; Capt. Hornby, Prescott; A. Fotts, Chester.

DORKING.—Highly Commended, M. Leno, jun., Herts; Miss A. Wilcox, Nailsea Court, Bristol. Commended, Capt. W. Hornby, Prescott; P. A. Eagles, Staplehurst; J. H. Thomas, Hereford.

DORKING (white).—Highly Commended, H. Lingwood, Suffolk. Commended, Mrs. Beardmore, Hants.

DORKING COCKS (coloured and white).—Highly Commended, Sir J. Paxton, M.P. Commended, Miss M. E. Tudman.

COCHIN-CHINA (Cinnamon and Buff).—Highly Commended, Mrs. F. Blair; Mrs. Fookes, Dorset; J. W. Kelleway, Isle of Wight; S. Statham, Sussex; T. Stretch, Liverpool. Commended, H. Bates, Birmingham; Mrs. Fookes; the Lady Superior, St. Mary's Home, Portsmouth.

COCHIN-CHINA (Brown and Partridge-feathered).—Highly Commended, P. Cartwright, Oswestry. Commended, Mrs. E. Herbert, Powick, near Worcester.

COCHIN-CHINA (White).—Highly Commended, Mrs. F. Blair.

COCHIN-CHINA COCKS (coloured and white).—Highly Commended, W. Cople, Prescott. Commended, T. Cartwright, Croydon.

BRAMA POUTRA.—Highly Commended, Mrs. F. Blair, Inchmartine, N.B.

GAME (Black-breasted Reds).—Highly Commended, Hon. W. W. Vernon, Ranton Abbey, Stafford; J. Fletcher, Manchester. Commended, W. Cox.

GAME (Duckwings and other Greys and Blues).—Highly Commended, J. Bradwell, Southwell.

GAME COCKS.—Highly Commended, Hon. W. W. Vernon, Stafford.

HAMBURG (Gold-pencilled).—Highly Commended, C. Catt, Brighton; A. Nuttall, Manchester; R. Oxley, Windsor; W. Pierce, Cheshire; C. H. Wakefield, Malvern Wells.

HAMBURG (Silver-pencilled).—Highly Commended, Master T. B. Keable, Beiks; J. Munn, Manchester.

HAMBURG COCKS (Gold and Silver-pencilled).—Highly Commended, C. H. Wakefield, Malvern Wells. Commended, C. Catt.

HAMBURG (Silver-spangled).—Highly Commended, R. R. Clayton, Slough; Commended, Lady J. Cornwallis, Staplehurst; Rev. T. L. Fellowes, Norfolk.

HAMBURG COCKS (Gold or Silver-spangled).—Commended, Lady J. Cornwallis, Staplehurst.

POLISH (Black with white crests).—Highly Commended, T. P. Edwards, Lymington, Hants.

POLISH (Silver).—Highly Commended, Miss E. Beldon, Yorkshire.

MALAY.—Highly Commended, J. J. Fox, Devizes; J. Rumsey, Shadwell.

BANTAMS (Gold-laced).—Highly Commended, T. H. D. Bayly.

BANTAMS (Game).—Highly Commended, Mrs. Beardmore, Farcham, Hants; Miss V. W. Musgrove, Ormskirk. Commended, W. Lawrenson, Hardhorn; O. Nicholson, Fareham, Hants.

BANTAMS (any other variety).—Commended, T. Walton, Darenty.

DUCKS (Aylesbury).—Highly Commended, Mrs. Seamons. Commended, W. Walter, Jewry Street, Winchester.

DUCKS (Rouen).—Highly Commended, Lady L. Thynne, Worthing; Mrs. Fookes; J. K. Fowler. Commended, Lady L. Thynne.

DUCKS (Black).—Highly Commended, Mrs. Beardmore, Hants. Commended, Mrs. Beardmore; G. S. Sainsbury, Devizes.

GESE (White).—Highly Commended, R. Tate, Driffield.

GEES (Grey and Mottled).—Highly Commended, Mrs. F. Blair; Mrs. Seamons, Aylesbury.

TURRETS.—Highly Commended, Marchioness of Winchester; Miss L. Crawshaw, Reading; Master E. Guy, Commended, Marchioness of Winchester, Andover.

ORNAMENTAL WATER FOWL.—Commended, C. Baker, Chelsea.
EXTRA STOCK.—Commended, J. Ellis, Berks.

PIGEONS AT THE CRYSTAL PALACE SHOW.

The Show of *Pigeons* numbered rather over 200 pens, of which the *Powters* and *Carriers*, shown as single birds and not in pairs, constituted one-third. As a whole the Show was not so good as we have seen it, the falling off in some classes being very marked. When the names of Wicking, Hayne, Maddeford, Jones, Weir, and others are absent from the catalogue of a metropolitan show, it is necessarily shorn of some of its greatest attractions.

In the *Powter Cock* class Mr. Paton was first with an old Blue bird, $6\frac{1}{2}$ inches in limb by $18\frac{1}{2}$ inches in feather; and highly commended for a young Blue that was regarded by all the *Powter* breeders that we conversed with as the best bird in the class, being longer and closer feathered in the legs and much slenderer in the girth than the old bird. The owner, certainly not a bad judge, placing nearly double the value on the commended bird. It was very difficult to see the reason of many of the awards in the *Powter* classes. For example: a very poor White cock, 6 inches in limb and 17 inches in length, was commended; a White hen better absolutely in every respect, and as a hen relatively immensely superior, was not noticed. The second-prize cock, a very venerable old Blue $6\frac{1}{2}$ inches and 18 inches, was miserably decrepit on the feet. The third, a Mealy, remarkable for nothing except a very bad colour, $6\frac{1}{2}$ inches in limb and 18 inches in length. In the *Powter Hen* class the first went to a Blue $6\frac{1}{2}$ inches and 18 inches. The second to a Red; and the third to a remarkably good bird in every other respect except colour, which was grizzled. She was $6\frac{1}{2}$ inches by $17\frac{1}{2}$ inches, a slim, close-feathered, upstanding bird, the picture of what a *Powter* should be in form and carriage.

In *Carrier Cocks* the first prize went to a Dun of Mr. Parkes, a heavily-wattled bird, but coarse and rather wanting in elegance of style. The second and third were Blacks. The highly commended young bird of Mr. Goss was a very stylish narrow-skulled bird of very good carriage.

In the "Cocks of any other colour," were shown two Black hens of Mr. Corker. These were entered in mistake, had they been in the hen class their insertion in the prize list would have been certain. In Black Hens we were much struck with the goodness of the first-prize hen. The Blue prize hen of Major Hassard was very good.

Dragoons were an unsatisfactory class to judge the prize. Blues went to a rather heavy, thick, coarse pair. A pen of elegant light birds that look too much like two hens were passed over without notice.

In the *Almond Tumblers*, Mr. Corker had the first prize with a splendid pair of birds. The head of the hen is marvellous—so very good, in fact, that one cannot help thinking that Nature has been assisted by Art in the manufacture of this perfect chrysolite. Mr. Esquilant took second with his well-known pen, the hen being what is known as a primrose. Mr. Percivall was third. In Mottles there were only two entries. Mr. Esquilant's Blacks winning. In the class of Short-faced Baldheads the first prize went to a pleasant pair of flyers that were not short-faced at all. The second-prize pen were exceedingly good. In the class for Self-coloured Tumblers, the prize was given to a very good pair of Kites; the second to Blacks. It would be interesting to know what exhibitors are to understand by the term Self-colour. It is usually understood to mean one uniform tint; and had the general opinion been that Kites were eligible to compete, it is certain that the number of entries would have been multiplied threefold.

The first prize *Yellow Jacobines* were good. The second, *Whites*, very poor. The class as a whole bad.

In *Owls*, Mr. Morris took a first with his pen of Miniature Whites, the same that won at Sheffield.

The first prize in *Nuns* went to Blacks that were claimed at £4. *Turbits* were not remarkable.

White Fantails good.

Black Barbs very poor except the cock in the prize pen, a first-class bird.

Magpies, a fair show; a pen of Blues or rather Silvers winning the third. Why three prizes should be given to Magpies,

and only two to Jacobines and other more valuable classes is an enigma.

Trumpeters poor. A fair pen of Black Mottles was disqualified for some reason not stated.

As if to show the good effect of a little liberality in a prize list, we may point to the *Runt* class (at most Shows the smallest of all the classes.) This contained twelve pens, because the prizes were worth competing for: whereas the *Trumpeters*, usually forming well-filled classes, were here only two in the White class and three in the Mottled. The birds so bad that one prize out of the two was withheld. No commendation given, the result of offering a single prize of 15s. in each class of *Trumpeters*, whereas three prizes commencing at £1 are given to *Magpies*.

In the "Any other Variety" class, the first prize was given to the *Wongo-Wongos*, noticed in our account of the Sheffield Show. The second to a pen of Australian Bronze-wings, in good feather.

The practice adopted by some Judges, of giving prizes to distinct species of foreign birds that are utterly incapable of domestication in a class which is expressly stated to be for the encouragement of "Any other new or deserving Variety" of our domesticated species, will very shortly have the effect of preventing any entries of varieties properly so called. This class was formerly one of the largest in the Show, it now numbers eight entries only, excluding the foreign species.

We have no wish to see these birds excluded from Shows; but let a distinct class be made for them. Every person would see the absurdity of giving a prize to an Antelope in any other variety of domestic sheep: yet it would not be one whit more ridiculous than rewarding the exhibition of foreign Doves, to the exclusion of the breeder of new varieties of our domesticated species.

POWTERS OR CROPPERS.—Highly Commended, J. Paton, Ayrshire; W. B. Tegetmeier, Commended, Marchioness of Winchester; K. S. Edwards; T. H. Evans, Lambeth Walk. Hens of any colour.—Commended, W. B. Tegetmeier, Muswell Hill.

CARRIERS (Cocks, Black and Dun).—Very Highly Commended, P. Goss, Plymouth. Highly Commended, Major F. C. Hassard, R.E., Portsmouth. Commended, Major F. C. Hassard, R.E.; P. Goss. Cocks of any other colour.—Highly Commended, F. Esquilant, Oxford Street. Hens, Black and Dun.—Commended, J. Parkes, Edgware Road.

DRAGONS (Blue).—Commended, F. White, Clapham; Common. Any other colour.—Highly Commended, J. Percivall, Peckham.

SHORT-FACED BALDHEADS.—Commended, H. Morris, Forest Hill.

SHORT-FACED TUMBLERS.—Highly Commended, F. Esquilant, Oxford Street.

OWLS.—Commended, H. Morris, Forest Hill.

FANTAILS.—Very Highly Commended, W. Dodds, Upper Clapton. Commended, Major Cock, Somerset; J. Percivall, Peckham.

BARBS.—Highly Commended, C. Baker, Chelsea.

SPANISH AND LEGHORN RENTS.—Highly Commended, C. Baker, Chelsea. Commended, T. D. Green, Essex.

RABBITS.

FOR LONGEST EARS.—Highly Commended, J. Angus, Woolwich. Commended, Guest & Coleman, Birmingham; M. Taylor, Hertis.

BLACK AND WHITE.—Highly Commended, J. Morris, jun., Forest Hill. Commended, Guest & Coleman, Birmingham; H. Hides, jun., Norwich.

YELLOW AND WHITE.—Highly Commended, R. J. Morley; R. B. Newsom, Brixton Hill. Commended, C. Felton, Erdington.

TORTOISESHELL.—Highly Commended, W. S. Roffey, Woolwich. Commended, H. Hides, jun.; C. Sellen, Surrey; A. Stedman, Surrey.

BLUE AND WHITE.—Commended, W. Griffin, Kent; Guest & Coleman.

SELF COLOUR.—Highly Commended, R. J. Morley, Blackheath Village, Commended, E. Davis, Russell Square; E. Hockley, Greenwich; C. Sellen, Surrey; T. Soles, Woolwich.

MORTALITY AT THE SHEFFIELD POULTRY SHOW.

WITH reference to your remarks on the mortality at the Sheffield Show, I would venture a suggestion. You take the case up most praiseworthy, but I and others who were there think you may be wrong; and until the proofs by analysis are published we shall continue to believe, and fully to hope, there was no poison administered. In the first place, we think many birds shown did not look well. Others in the same pens you mention looked dull; and we are inclined to think a great deal arises from the distances they travelled, the violent and rough usage they receive by railway porters, &c., want of food, and probably they were not in any way stimulated before sending off, which all birds should have before going to shows. We think, in the absence of further proofs, this is often the cause of deaths and illness after exhibitions: for it is not uncommon that a bird leaves well, he gets to his journey's end much changed, and, in the case of cocks, the combs often change and never come up again. We hope, through your columns, to hear

of some of the birds in question having been opened, and some further information will be sent you; or, as you say, it will stop many from sending their birds anywhere. I think it would be a good plan if the managers of poultry shows would have large tickets printed and displayed about, stating, "Persons seen giving poultry anything to eat, &c., will be turned out of the Exhibition."—T. B.

[We are not aware that the poultry sent to Sheffield had to endure usage more inimical to life than they have to endure when sent to other poultry shows. If they had, let this be stated and amendment promised for the future. Neither was the weather so sultry as that which poultry have had to endure at other shows where no mortality has occurred. At no other show did we ever know of so many deaths; neither before any other show did a "SELIM" foretell the deaths, and warn against foul play. It would have been very satisfactory if the Committee had had the contents of the dead fowl's crops and intestines "analysed;" but they did not do so, we believe. At present we are of opinion that circumstances sustain the suspicion that the deaths of poultry at Sheffield were occasioned designedly.]

A RESULT OF IMPROPER FEEDING.

I HAVE just dissected a hen which died last night, and I found her intestines were very fat, and her liver weighed 7 ozs. I only noticed her ill yesterday morning. She had been sitting for a week, and on opening my house in the morning I found her sitting on a perch, and then put her into a coop and gave her a tablespoonful of castor oil immediately, but she gradually got worse. Can you tell me the cause of her death? The lungs were very slightly diseased; but all the other organs very healthy, except the liver, which seems to me to have been of unusual size.—C. H. D.

[Your hen died of diseased biliary organs, caused by excessive and improper feeding. All the bile remained in the liver, and if you noticed it you will bear us out, that the liver, instead of being the deep dark brown it should be when healthy, was wainscot colour; that it was so altered from its proper formation that it could be spread like butter with a knife; and the gall-bladder, instead of being full, round, and bottle-green, was nearly empty, and of a very pale sea-green, or sickly yellow hue. The fowl had a fat liver. In such case the bird becomes thinner, and the liver and intestines become fatter. In this stage it is incurable; but it seldom occurs when fowls are only moderately fed, and are allowed to exert themselves a little.]

AVOIDING ROUP.

HAVING seen in your *Poultry Chronicle* much complaint of roup amongst fowls, I am induced to send you a little of my experience in poultry keeping.

I have been amongst them thirty years, and have kept most kinds, and I am certain that a suitable situation is the greatest desideratum in poultry-keeping, particularly as respects roup. I have never found that poultry do so well on low clayey land as on sloping sandy soils; the Dorking, Spanish, and the Hamburgs in particular. Any other sorts suffer less, and Game, above all others, have done the best with me in a low place, and I have found that good dry barley is the best food (considering they have a good run) for them, even for chickens as soon as they can take it—say when a month old.

I consider all opening food ought to be avoided for roup fowls as they are often too much purged.

I should never roost roup fowls in a house at all in summer, the boughs of a tree form the place better than all others for them, and will prove to have more influence over the disease than anything else.

I have cured a bad case, in a fortnight, with a dose of twist tobacco at roost time, about half-an-inch every other night, and the tree for a roosting-place.

I never remember seeing roup bad where fowls have roosted out. In the case of young chickens it is awkward: you cannot roost them out on a perch, but they may be put in an open shed, or any other unclosed building would do. If they roost inside, thorough ventilation must be seen to; and the fewer chicks with each hen the better for avoiding the disease. If one should be taken with it, and the chicks are young, kill it at once, if you

mean to avoid contagion, as if they are under the hen at night the rest will be sure to catch it. In all cases feed well; if they are very young do not be afraid of an egg or two chopped fine, and rubbed into three or four times their bulk of good, stale, white bread, and a few grits now and then in the day. With this management you will not want many of the nostrums so often described as certain cures.—OLD HAND.

"B. & W.'s" APIARY IN 1861.

SUNDRY notices of my apiarian proceedings this year have appeared in your columns from time to time during the summer which is now waning; but as they have only afforded glimpses of the condition and history of my bees, and have been written unconnectedly, I purpose, according to my annual custom, to relate in order what has befallen me in the way of good and ill success.

I began the year with five stocks out of the seven which I had at the close of last summer. As I took 29 lbs. of honey in supers from them in a bad year, I only saved these five by dint of steady feeding with sugar water all through the autumn, winter, and spring—in fact, up to the second week in May. At that time the bees stood as follows in my bee-house:—

A, defunct.	B, strong.	C, not very strong.
D, strong.	E, moderately strong.	F, strong.

B gave me two artificial swarms. I call the first A, as it was put in the place of defunct A. The second remains B, as I destroyed and plundered the old hive-box ultimately.* These swarms were forced severally on the 11th and 23rd of May. It was on the 11th that I received my first Italian queen, whose misadventures were recorded in this Journal at the time. My impatience was undoubtedly the cause of her destruction by the bees of B, to which I offered her twenty-four hours after swarm A was forced. When the second swarm was driven on the 23rd, the young queen, which they reared artificially, was still imprisoned together with four other princesses in their cella. I cut out these royal cells, adjusted them in a glass over a hole in the top of the box into which the swarm was driven, and had the pleasure of seeing her issue from her prison on the 27th. The others were immediately destroyed. This swarm thrived extremely well, and was full of honey and bees at the end of June, which was also the end of the honey season in this neighbourhood. The first swarm A also did remarkably well, and gave me a super weighing about 15 lbs. nett, a small box nett 5½ lbs., and 1½ lb. in a small glass globe—22 lbs. in all.

Out of F I forced a swarm on the 17th of May, which, as it took the place of the old stock, also retains its title. The parent stock was removed to a window in another locality, and was ultimately broken up and plundered on or about the 12th of June, when the bees with their young artificial queen were driven into a Tasmanian hive (G). These have since done well, being weighty with honey and full of bees. The swarm F gave me 36½ lbs. nett honeycomb in various boxes and glases. I, perhaps, obtained so much honey from this swarm because I sliced up the combs in two of the boxes, allowing the honey to run out, and returning the foundation of the combs attached to the bars, all that the bees had to do being to elongate the cells and replenish them. A great economy of wax is effected by this method, although it is a somewhat delicate operation and troublesome.

On the 24th of May I forced a swarm out of C, the swarm taking the place of the old stock. The latter was removed to a stand in my garden, but came to nothing, owing to the entire migration of the bees to their old locality. There was an immense quantity of brood sealed up; but few came to anything, owing, I presume, to the absence of sufficient heat in the hive. I was never more disappointed in my calculations; but my impression is that a young queen had been artificially reared by the bees in April, and that she had only just filled the hive with her first brood. The old bees would thus be all strong on the wing, and familiar with their old haunts. The swarm, however, gave me about 21 lbs. in glases and boxes.

D stock swarmed naturally on the 14th of June. The swarm H was put into an improved straw hive and located in my garden. It thrived so well that I obtained from it a beautiful globe weighing 6½ lbs. nett honeycomb on the 22nd of July.

* This box was superadded to another hive till every particle of brood was batched out of it. Several pounds of honey were taken from it.

while the parent stock in the bee-house, which swarmed no more, gave me 27 lbs. of excellent honeycomb in two supers.

But my grand spoil was obtained from E, which was left to its own devices. Besides its own stores in the stock-box (more than sufficient for the winter), it gave me in three supers 64 lbs. nett of beautiful honeycomb.

It will thus be seen that by the end of July my five stocks had increased to eight,* while my honey harvest from all sources has amounted to 188½ lbs. Of this I have already sold 70 lbs. at an average price of 1s. 2d. per lb.—B. & W.

(To be continued.)

INTRODUCING A LIGURIAN QUEEN BEE INTO MY APIARY.

As it is the fashion of many individuals to follow some particular pursuit, or hobby as it is sometimes called, independent of their profession, so I have mine. I am a "bit" of a bee-keeper for two reasons, profit and pleasure. I have placed the former first, as I fear this has such an influence over my love of this branch of natural history, that were it to cease the second would suffer in a corresponding ratio. These two reasons have, doubtless, induced the Editors of THE JOURNAL OF HORTICULTURE to devote a portion of their columns to the discussion of this branch of natural history. And these two reasons have influenced me to persevere with no little pleasure that portion of the said Journal devoted to that subject; but my phrenological bump denoting excitability felt more than usually disturbed when the news of a hitherto unknown species of these industrious insects had been introduced amongst us. I say unknown, which I believe is correct to a certain extent, as but few English apirians have hitherto been personally acquainted with this Italian species. I, in common with several others of your readers, was suffering from this bee-mania, and I for one wrote last season to the chief physician, "A DEVONSHIRE BEE-KEEPER," for relief; but as bad luck would have it, no relief could be procured, and poor I with several other patients have continued to suffer from this malady for more than twelve months. At length the long-looked-for came at last in the shape of a Ligurian queen bee, but misfortune still continued to place its sombre mantle o'er me. This time my own ignorance, or oversight, was the afflicting agent, as I shall presently show.

Her majesty arrived on the evening of July 19th, in a little casket escorted by a few workers—of course, too late to commence proceedings at that hour; consequently, I left her undisturbed until the following morning, when about eleven o'clock I began by unhousing my native stock, which is a swarm of June 16th, and hived in one of Mr. Tegetmeier's bar-frame hives (thanks to Mr. Woodbury for recommending me to introduce bar-hives into my apiary). I removed every bar into an empty hive without finding her. I then inspected the sides of the hive and found her surrounded by a portion of her subjects. I removed and placed her under a wine-glass. I then adjusted the hive, leaving the inmates to discover their loss, whilst I repaired to the little casket in order to discover and provide them a future sovereign. And here quite a romantic incident occurred (or rather incidents), involving me in the trouble above referred to. After removing the lid of the box and investigating the comb, nought could I discover amongst the workers at all resembling a queen bee but one, as I thought larger than the rest, and this one so debilitated as scarcely being able to move. I took this one out, examined it, presently it ceased to exist. I still thought it must be a small queen; but to make sure doubly sure, I took the little box about twelve paces from the house, I then shook them out on a cloth but could discover no queen, and how it could have escaped my observation is a mystery I am unable to solve. This led me to conclude that the dead bee above referred to was no other than the queen. This made me feel "kinder riled." I then took the original queen from under the glass with the intention of placing her in her former position, but it refused to enter between the bars at the top of the hive. Being obstinate I deemed it expedient to resort to physical force, so I

pushed her in with my finger; in so doing I accidentally killed her. Here was a dilemma for a novice in apirian tactics to be placed in. I was fairly done.

There was now no alternative but to leave this now-disorganised colony to re-arrange their constitution, and to select or rather provide themselves another monarch. In the meantime I toiled my hair with my fingers in order to allay a peculiar itching sensation that then pervaded my "cranium." As soon as the agitation had sufficiently subsided to compose me into a writing mood, I resorted to pen and paper, and commenced communicating my chapter of accidents to "A DEVONSHIRE BEE-KEEPER." I had about half finished my melancholy ditty when my daughter (a girl of ten years old) opened the door from whence I had made my exit, with what I thought a queenless box, when what was my surprise to hear her exclaim, "Oh! father, here's the Ligurian queen!" And sure enough, as an Erinite (if there is such a word) would have it, there she was with her faithful few in the act of flying into my house. (Could this have been merely accidental or a beautiful example of instinct?) She alighted on the wall, I then took the little box and held it over her, she immediately entered, and I no little joyed at this opportune discovery, as quickly took her to her new domain, separating her from her subjects until the morrow by a piece of perforated zinc. During all this time the inmates of the hive were most irascible, they attacked every one that approached within fifty yards of their territory. On the morrow (July 21st) I withdrew the zinc and admitted them to their new sovereign, after this they were more composed, and resumed their usual activity, and as they continued busy collecting pollen I concluded all was well.

I saw no Ligurian bees until August 17th. I saw then two at the mouth of the hive; the next day more made their appearance, and continued to increase daily, and now (August 27th) the hive appears quite transformed, and has every appearance of doing well. Amongst the several superior qualities which they are said to possess over the black bees, I can bear testimony to one—their appearance is certainly superior—in fact, they are very interesting to look upon; but whilst they are thus far assimilated to the present age, I hope they will not prove deficient in the "main point."

I have in compliance with the expressed wish of "A DEVONSHIRE BEE-KEEPER," entered somewhat fully into the events connected with this my first effort to Ligurianise my apiary, and I trust they will not fail to interest your numerous readers. When time permits I may relate a little about bees and bee-keeping in this district, should you deem the observations I may make worthy a corner in the Journal.—S. AMEX.

GOLD FISH BECOMING BLACK.

In one or two of the early Numbers of your New Series, are some answers to questions respecting Gold Fish. May I trouble you with a new case? Four Gold Fish, purchased some few years ago, have been kept in a rather large glass globe, in which are a few shells and pieces of moss; and the water is changed every week (all according to directions received by the purchaser in London). One of these fish some time ago showed certain dark, I may say black, marks upon it; the back, the top of the head, and the tops of the fins and the tail. This dark colour increased until the whole body assumed a black appearance, and the fish died. Two of the remaining fish are now undergoing the same change; slight at first, but increasing. Can you tell me the cause? Is there any mode by which it may be removed? The globe stands in not a hot room, and has been there some few years. Can it be from age?—DEER.

[We have often observed dark spots on Gold Fish, and when very young they are entirely dark; but we never before heard of this total relapse to a dark colour. We shall be obliged by any correspondent sending us information upon the subject.—Eds. J. of H.]

OUR LETTER BOX.

WRIGHT OF EGGS (Fanny).—The average weights are—Dorkings, 2½ ozs.; Rouen Ducks, 3½ ozs.; Aylesbury Ducks, 3 ozs.; Game, 2½ ozs.; Ham-burgs, 1½ to 1¾ oz.; Malays, 2½ ozs.; Polands, 2 ozs.; Cochins-Chinas, 2½ ozs.; and Spanish, 3½ ozs.

STEWARTON-BITES (H. Johnson).—If you will buy No. 10 of our Journal you will find such a description as you require.

* Every stock, after my share was taken, remained well supplied with honey, so as to require very little if any feeding—in fact, I only plundered what the bees chose to deposit in boxes and glasses. Our friend, the "DEVONSHIRE BEE-KEEPER," will bear testimony to the correctness of my story from what he saw of the condition of my apiary on the 15th of July.

[I can have no objection in bearing witness to the correctness of the above, which is, moreover, agreeably impressed on my memory by the recollection of a very pleasant visit.—A DEVONSHIRE BEE-KEEPER.]

WEEKLY CALENDAR.

Day of Month.	Day of Week.	SEPTEMBER 10-16, 1861.	WEATHER NEAR LONDON IN 1860.					Sun Rises.	Sun Sets.	Moon Rises and Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in inches.							
10	Tu	Glycine monoica.	30.072-30.035	58-32	N.E.	—	m. h.	m. h.	m. h.			m. s.	253
11	W	Phlox pyramidalis.	30.267-30.161	64-28	N.E.	—	29 45 3	23 46	46 8	6		3 10	254
12	Th	Saffron Crocus.	30.315-30.113	66-28	S.E.	—	30 5	23 6	43 9	7		3 31	255
13	F	Nolana prostrata.	29.985-29.776	70-38	S.	-.02	32 5	21 6	51 10	8		3 52	256
14	S	Zinnia.	29.605-29.494	67-46	S.W.	.04	33 5	18 6	morn.	9		4 13	257
15	Sun	16 SUNDAY AFTER TRINITY.	29.493-29.485	65-47	S.	-.01	37 5	14 6	5 0	10		4 34	258
16	M	Polygonum orientale.	29.602-22.582	65-54	S.W.	.18	38 5	12 6	21 1	11		5 15	259

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 68.1° and 46.4° respectively. The greatest heat, 86°, occurred on the 12th in 1853; and the lowest cold, 31°, on the 12th in 1848. During the period 135 days were fine, and on 105 rain fell.

PARENTS OF SOME GLADIOLI.



EALLY obliged should I be if you could tell me the names of the parents of Gladiolus gandavensis. Also, whether the six following varieties—Eldorado, Canasi, Ophir, Linné, Brenchleyensis, and Vulcan, are the progeny of *G. gandavensis* by itself, or of *G. gandavensis* crossed by some other species? If the history of these six varieties be not known, their appearance may, perhaps, to instructed eyes tell their probable origin.—CHARLES DARWIN.

[The parents of Gladiolus gandavensis have been first mis-stated on the Continent by Van Houtte, in his description of it, and in England by Paxton, in his "Magazine of Botany." Gandavensis is an English seedling, and was raised by Dr. Herbert and by J. T. Alcock, Esq., but neither of them could flower it or any of the seedlings of

the same cross, and they sent out the bulbs to Mr. Bidwell, at Sydney, where the climate was more favourable. Mr. Bidwell flowered all the seedlings at Sydney, and one of them, *gandavensis*, found its way back to Europe. The false parentage given to it by M. Van Houtte shows that that "way" was not as it ought to have been.

Van Houtte's parentage was between *natalensis* and *cardinalis*; but it is a curious fact, that the Natal bulb resisted all the attempts to cross it everywhere with any one of the west Cape species. *Natalensis* was the mother of Gladiolus *gandavensis* by the pollen of the Madagascar *oppositiflorus*, and the cross was accomplished by two of the most correct breeders of their times. Through *oppositiflorus* as a floodgate both the west and east Cape Gladioli and their offspring have been induced to breed as freely as the Pelargonium. Like the Pelargonium the Gladioli of the present day are, and have been, fast "improving" on the principle of breeding in-and-in. There is no seedling in cultivation from *gandavensis* by any distinct species whatever. But *gandavensis* is certainly a true cross-bred plant between two genuine wild species; and although it is now more than twenty years of age, not the age when it was announced on the Continent, it is the last distinct cross between any two species in the genus.

The seedlings which you mention are all garden crosses, but they are not the most dissimilar from the originals. Gladioli are now getting striped and picoteed like Dianthus. Mr. Beaton once or twice mis-stated the nativity of Gladiolus *gandavensis*, saying it was an Australian seedling, while it merely flowered there, with Mr. Bidwell, for the first time.—D. B.]

No. 24.—VOL. I., NEW SERIES.

THE CRYSTAL PALACE SHOW OF AUTUMN FLOWERS AND FRUIT.—SEPT. 4th & 5th.

It was a grand Show, and the finest Dahlias ever yet seen were there. The best Hollyhocks that ever were known were there also, right and wrong—that is to say, it is not only wrong, but very wrong, to give one farthing for cut flowers of Hollyhocks; for if there is a blackleg between Sydenham and the Brigg of Ayr, he has here the power and the inducement to cheat his customers with the most unworthy-of-cultivation Hollyhocks that ever were seen, for out of the worst spike one flower picked, and cooked to look as the best we had there, and a prize being obtained for it, it might be called a first-rate, and then the exhibitor might turn round and say it was not his fault, the Judges said so, and surely it was right and fair to turn a penny by it. That is exactly where the arrow tends to from cut blooms of Hollyhocks more than of any other flower.

The very best China Asters in the world were there, and twice, if not three times, better than they were seen before. There were thousands of them, and literally there was not a bad flower among the whole. But there is one thing mightily in their favour—they have no ephemeral names to confuse and bother people. They are in two classes—the quilled or German, and the French or flat-floreted sorts. Now, just look at one of the best German Asters, and see what we have lost in the loss of the tasselled Chrysanthemums through the madness of the best of our brethren, the florists, in their hurry to get at the "improvement" of one section of the family. Why should we not have Chrysanthemums exactly in the form of the best China Asters, as we might just as easily have had from the tasselled kinds of Mr. Sabine's account of them, as we do have the charmers of the incurred mood?

But the Gladioluses, of all the flowers of this generation, have made the most rapid strides on to perfection of "lug" and feather; and Verbenas put up in bunches, are very pretty ornaments in the drawing-room on pretty little stands of knick-knacks, but in that way they are of all other flowers the greatest traps to the simple and unwary who may frequent some shows. Nothing in the palmy days of honest George Robinson, of Charing Cross renown, was more likely to deceive a good customer as a bunch of so many trusses of Verbenas; and I would leave it as a legacy to my country readers never to buy or even think of such a thing as buying a new Verberna, from only seeing a pretty bunch of it at a show. But understand me, I would not advise the doing away with the exhibition of cut Verbenas by any means.

What I would like to see is this—only a few heads with a sufficiency of brains to see the folly of the present system with all cut flowers, not even excepting the Rose. What good has all the money done that was spent in rewards for fruit at Chiswick for the last thirty years? It never taught a single individual how to place a dish of dessert on the dinner-table, which is by far the most essential "property" for a working gardener to know about fruit. What on earth is the good to the propelling power of gardening in civilisation, that you can anticipate from exhibiting heaps of cut flowers, without heads or tails, or any kind of real meaning in their arrangement?

This was certainly the most beautiful sight of cut flowers I ever saw; but I could not help musing on our childish ways of displaying them. Is there no man or woman on this or that side of the Thames who would enjoy a design with cut flowers that would combine the richness of five distinct shades of colour in Dahlia, Verberna, Hollyhock, or Aster? Can a mortal learn

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anything from seeing flowers set down as if Jupiter had thrown them after his queen from the heaven of his idolators? Could they not be so placed and grouped or arranged as that a body "frae the countra" might pick up some notions of decoration from their effects? Surely we could hit two birds with a throw with cut flowers and fruit. I mean, we might exhibit all kinds of combinations and contrasts of colours, on various ground colours, by the very flowers we now use or abuse like children, for no use whatever.

The same with fruit. I would never give a prize to cut fruit which was not set up exactly as if it were in the dessert on the dining-table, that people who go to the Exhibition might learn something more than that Jack the giant-killer took the first prize in Pumpkins and Water Melons. Should there not be some higher aim in our awards for fruit than a day's gossip in the village or parish where Jack was born and brought up, about a medal he had from the Society to wear on gala days? No doubt we are now passing through that degree of civilisation where such defects can be seen from behind, and such perception may be spied in the distance. And, no doubt, also, but we shall reach the top of the hill just at the right time, and not one moment sooner, no matter how we preach or how we practise.

To begin with the Fruit. There was a high-raised stand under the great orchestra on purpose for a collection of fruit from Sir Joseph Paxton's "Hothouse for the Million." The collection was not for competition, but to show what splendid fruit could be had from the simplest form of structures, and the least expense in management; also to exhibit the French mode of managing common Grapes for common people—that is to say, six pots of some Chasselas Grape loaded with bunches of Grapes on the natural system, or without any attempt at thinning the berries, which they eat as we, or some of us, eat common Currants. Then a row of splendid dishes of Peaches, Nectarines, and Plums, as fine as any for the grand prizes. Her young Grace of Sutherland was again at the place of honour in the dessert competitions. Her head gardener, Mr. Henderson, being first shot at all the long ranges, and at some of the short ones, as this tale will tell. First-class prize for the best eight dishes, won by Mr. Henderson. The first collection of six dishes and first prize to Mr. Henderson. The first prize for the best two kinds of Peaches, and the best two kinds of Nectarines, to Mr. Henderson. Mr. Snow's extra prizes for the best of his Muscat Hamburgh, first prize to Mr. Henderson; and an extra prize for the most out-of-the-way kind of fruit also to Mr. Henderson for Psidium Cattleianum.

The collection of eight dishes began with a handsome Pine Apple, a prickly Cayenne; Black Hamburgh and Lady Downe's Grapes, with Muscats of Alexandria between Trentham White-fleshed Melon; Brugnion Nectarines; Late Admirable Peaches, splendid samples; and Morello Cherries, black as Sloes.

The six-dish collection, a Montserrat Pine Apple, Lady Downe's Grape (black as jet), Muscat of Alexandria, Royal George Peach, Violette Hâtive Nectarine, and Trentham Green-fleshed Melon.

The four Peach and Nectarine dishes were of the Barrington Peach and three kinds of Nectarine, the two oldest-standing dishes, Elruge and Violette Hâtive; and the third a most luscious-looking lot of Williams' Pitmaston Orange, as yellow as if they were fresh from the diggings, and as brown as a berry. There was only one more dish of this beautiful-looking Nectarine in the whole Exhibition, it was from Mr. Goldsmith, gardener to Sir W. R. Farquhar, near Dorking; but in another class of less kinds in which Mr. Goldsmith was deservedly first fiddle.

The second prize for the eight-dish collection was cleverly won by Mr. Tillyard, late gardener to the late Speaker, and now to the great builder, J. Kelk, Esq., down at Rossy Priory, near Edgware—a celebrated place for fruit for many years while in the occupation of the Marquis of Abercorn, and now as likely to keep up the charter of the place as ever it was. Mr. Tillyard has been shooting successfully at the Regent Street "butts" for years past. His dishes were Prickly Cayenne Pine Apples, splendid Muscats of Alexandria, Black Hall Melon between the Muscats, fine Black Prince Grapes, Magnum Bonum Plums, Green Gages, Late Admirable and Noblesse Peaches, and Morello Cherries.

The third on the list was Mr. Young, gardener to W. H. Stone, Esq., Havant. He had a Black Jamaica Pine, a fine Dulwich Perfection Melon, Banana fruit, Black and White Grapes, Elruge Nectarine, and Victoria Plums, and Late Admirable Peach. All the Peaches and Nectarines were very fine, the Grapes were above extra fine. A new exhibitor of Grapes up from Liverpool made some of the London people open their

months wider than their wont. But you shall see after we get through with the Pines.

What would you say to a Pine Apple 19½ lbs. plump down at the end of the fruit-stand?—a perfect natural curiosity in its way, and carried out in the best way known to us gardeners. It was a handsome Prickly Cayenne, sitting low down in the centre of an immense number of its own progeny, and looking like a peacock, if it could be made to sit on a stool when its tail is up; then, like as its feathers in closeness together, rose a circle of suckers from the neck of the Pine Apple, and each of these had a little Pine Apple for a stool; lower down another row of suckers rose close to the first, and then scattered ones down the stalk of the main fruit. There were eighteen or twenty suckers in the first circle, quite as many in the next, and half as many a little lower down: about fifty in all—something to talk of when that kind cost £1 the plant. This was from our old friend Mr. Page, gardener to W. Leaf, Esq., Streatham.

Mr. Thomas Young, gardener to C. Baily, Esq., M.P. Aberdare, had the first Pine prize with a handsome black Jamaica; and Mr. G. Young, with Mr. Page, had the second and third in that class. The next class being Queen Pines, and in them Mr. Page had the first shot with a five-and-a-half pounder, and Mr. Dalrymple was next with a four-pounds-five-ounce specimen. Mr. Bull, from Messrs. Weeks' pineries at Chelsea, had several nice Pines, and some prizes for them by way of extra.

The Grapes were never seen better. Mr. Smith, Lord Tenterden's gardener, and Mr. Henderson, of Trentham, were the only two competitors with Snow's Muscat Hamburgh for his prize. The largest bunch of Grapes was from Mr. Dwerrihouse, the successor of Mr. Tillyard to Lord Eversley; it was the clear White Grape called Marchionessa of Hastings, it is larger than Trebbiano, and is said not to turn amber colour like Trebbiano and Muscats when full ripe or over-ripe; but it is an immense buncher. The second largest was a double bunch of Black, the stalk of the bunch at "showing time" divided into two stalks, and both carried a bunch. The two together had a fine touch of good management from Mr. Meredith.

There were twelve baskets in competition for the twelve-pound Black Grapes, and they were all first-rate to look at, and there was a tie for the first and third prizes, Mr. Harrison and the new comer from Garstang, near Liverpool, being equal in the first, and had each a first-rate prize.

The Peaches and Nectarines in pots were all from the Messrs. Lane & Son, the great Rose growers. The Apples were not in perfection, and the Pears were one-quarter ripe, except a few summer ones. What a farce it seems to offer prizes for green fruit not fit to grind for cider or perry! No Society or Committee should ever offer, or give, a prize to a single article of fruit which is not fit to set before the Queen at the time of exhibition. But we inherit all this from the mismanagement of the glories of Chiswick. There were bushels of green Apples and Pears, and heaps of Gourds and fancy Squashes—beautiful things in their way, however; some lengthy Cucumbers, but none over a yard as far as I could see, and if you would go to Ipswich in the spring of the year, you would see the Cucumbers sold there by the yard measure, as they sell the butter in Cambridgeshire.

I began the Flowers with the Gladioluses. As a whole they were not so good as they were last year, and Mr. Standish is, or was the only exhibitor of them who put them up to the best advantage—that is, in dark green boxes and bright green moss; but dark brown oak colour is the best ground colour to put flowering plants on, and green baize. The common standing dish is the second worst thing to make the best of flowers. A Frenchman last year put his collection of Gladioli in pale glass bottles of water at the Crystal Palace, one stage worse than green baize, and this season lots of them were set in common garden pots full of sand, just enough to ruin the effect of the best flowers in the world. Mr. Standish was first, of course, were it only for his judicious disposition; but there were some splendid new kinds. I would not hold the candle for any man in Europe on this subject. I was at the first, and the last, and the middle of the din which raised the Gladiolus to this pitch. I raised them by the thousands and never lost sight of them to this day; but I never had them worse with me than they have been in my front garden this season. The leaves were red-spined this year as nothing was ever like it, yet being early sorts they bloomed before the leaves were ruined. There were 424 of them at the Show in four collections, besides a great many for ornamentation up and down the stands.

The first thing which struck my eye in Mr. Standish's first-class collection, was one in a new strain in colour and marking—a most ladylike flower, crimson and white caraoated and picotee, as in some of the early Tulips; the throat yellow, and stained with deep crimson feathers. The flowers stand back to back on the spike, as all in one section of them do, and in making bunches of cut spikes that way of blooming is most handy for placing contrast colours in each other's axils, as one might say. This charming flower is called Mrs. Hole, and you may set down Mrs. Hole as the most perfectly painted lady from top to toe amongst all Her Majesty's floral subjects. Joshua Dix is still the richest of the rich crimson and deep purple cast. Belle of Bagshot is a pure white, with a lemon yellow throat, which is stained with crimson feathering, another love of a thing. Reynolds Hole, a big robust kind, in the style of Joshua Dix, but lighter all over, on a bold vigorous spike, shoulder high above its fellows, and curving gracefully to be seen in front. Verily these florists put a high value on individual character, if we may judge from the flowers they name after their wives, friends, and patrons. Madame Vilmoren, a shaded rosy lilac, just a lady's colour to a tint. Lanei, or J. W. Lane, said to be the Turner of the florists of Dublin, for his turn for flowers when his attorneyism allows him half an hour among them. This is of a deep vermilion ground, with a lighter stripe in each of the sepals, and the throat a yellow ground feathered with crimson. Goldfinder, best-shaped yellow. Osiris, a continental seedling, remarkable as looking so much like the Byzantine Gladiolus. Mrs. Dombraine—here, again, we have a perfect model of a chaste florist's fancy in form, shape, and symmetry in one flower, the ground colour of which is a delicate blush lilac, and it is striped all over and more prominently along the edges with carnation stripes; the throat is a mottled crimson, with three deeper bands for feathers. Mrs. Standish looked more like herself than she did last year; better season and better luck in living might be the cause. Of all the continental seedlings in this collection, Eugene Dumage, a deep scarlet and crimson is the very best, a first-rate shape also, if shape can be of use in so many moulds of matrons and matronettes, to coin a word new as one of these seedlings. But I have kept my own favourite to the last, a most charming new colour, with which you cannot meet out of the Asiatic Dendrobiums. The colour is between fawn colour, salmon tint, and the vitellina kind of yellow all suffused together, but lighter and deeper in different parts of the flower. The name is Edith Dombraine, a dear little pet, you may be sure, if you had seen this flower for her namesake.

Those I noted in Mr. Youell's collection, which had the second prize, were Courant fulgens, Raphael, and Napoleon III., as the three highest-coloured; then Gandavensis, Duc de Malakoff, and Boviensis; then Ophir, Ceres, and Madame de Vetry.

Out of the third collection, which was from W. Paul & Son, the highest was Madame Furtado; Victor Verdier, both as in the names of Roses; Cleantes, a fine striped Carnation on a lilac ground; Duc de Malakoff again; Robert Blum, orange and scarlet; Premier de Montrouge, crimson and scarlet; Mazeppe; Raphael, and Brencleyensis. Every one of all these names represents a first-class flower-garden flower. As to shapes, the best for Gladioluses is two triangles placed at right angles, which cut the ground from under our florists' feet. To make any one flower in the order of Irids a perfect circle would be to spoil it altogether.

At this very point of my tale I spied a most practical florist in the distance—Mr. Holmes of the Frampton Park Nursery, near Hackney. He and Robinson's Defiance, or the author, rather, of that Verbena, seemed to be contemplating on having a leaf out of my book, thinking, probably, that I was out in my books in such company; but no, I got him, the said Mr. Holmes, fast by the button-hole, and stuck to him till he promised to do the Dahlias for me, for I never yet knew the right end of a Dahlia.

Mr. Holmes' list of the twenty-four finest Dahlias in the Crystal Palace Exhibition is as follows:—Triomphe à Puk, Chairman, Jenny Austin, Lady Pupham, Golden Drop, Hugh Miller, Mrs. W. Figgott, George Elliott, Joy, Lord Palmerston, Goldfinder (Keynes), Mrs. C. Waters, Warrior, Mrs. Churel, Mrs. Vyse, Cherub, Satirist, Col. Wyndham, Criterion, Pre-eminent, Flower of the Day, Sidney Herbert, Sir G. Douglas, and Mrs. Beaumont.

Seven Fancies.—Lady Paxton, Queen Mab, Elizabeth, Pluto, Elegans, Coronation, and Enchantress.

The best Seedling is Pop's Earl Derby.

The Hollyhocks in spikes were grand indeed; but I must keep the names of the best-coloured ones of them in spikes and in cut blooms, till it is time to buy them, which will be very soon, and then I shall mention the exhibitors and their kinds. The same in Roses, for I want to close with the China Asters, after saying the Phloxes were good and no more; and Mr. Cutbush, of the Highgate Nursery, had the finest-bloomed lot of Tritoma uvaria in pots I ever saw; there might be two dozen of them in comparatively small pots, and so bloomed as freely as Tom Thumbs.

But what I was going to say about China Asters was, that I got hold at last of the man who took the first prize for French Asters for the last four years—if not longer. Mr. Sandford has his Aster seeds from the Messrs. Fraser, of Lea Bridge Nursery, every year. He sows between the 20th and 26th of March, and treats the seedlings and the full-grown plants as he does his Celery seedlings and plants, only they are not planted in trenches, and that the Asters require about four times the quantity of water. He thinks home-saved seeds not fit for prize plants, and he grows great quantities to select from.

D. BEATON.

The following is a list of the prizetakers:—

FRUIT.

Collection of eight dishes.—First, A. Henderson, Trentham. Second, G. Tillyard, gardener to J. Kelk, Esq., Great Stanmore.

Collection of six dishes, distinct kinds.—First, A. Henderson, Trentham. Second, T. Dawson, gardener to Earl Cowper, Farnham.

Pine Apple, single fruit, any variety but Queen.—First, T. Young, gardener to C. Bailey, Esq., M.P., Aberdare. Second, G. Young, gardener to W. H. Stone, Esq., Havant.

Pine Apple, Queen, single fruit.—First, J. Page, gardener to W. Leaf, Esq., Streatham. Second, R. Dalrymple, gardener to C. H. Leigh, Esq., Pontypool Park, Monmouthshire.

Grapes, boxes of 12 lbs. weight.—Equal First, C. F. Harrison, Weybridge. Equal First, J. Meredith, Garstang, Liverpool. Second, S. Solomon, Peckham Rye.

Grapes, Black, two dishes, distinct kinds.—First, J. Meredith, Garstang, Liverpool. Second, withheld.

Grapes, White, two dishes, Muscat or any other variety.—First, T. Frost, Ayleford. Second, J. Meredith, Garstang, Liverpool.

Grapes, the largest bunch of any kind.—First, J. Dwerrihouse, gardener to Viscount Eversley, Heckfield. Second, J. Meredith, Garstang, Liverpool.

Peaches and Nectarines, four dishes, two kinds.—First, A. Henderson, Trentham. Second, W. Kaile, gardener to Earl Lovelace, Ripley.

Peaches and Nectarines, two dishes.—First, G. Goldsmith, gardener to Sir W. R. Farquhar, Bart., Dorking. Second, H. Packman, Ewell Castle.

Melons, green-fleshed, single fruit.—First, T. Bailey, Swardlees Garden, Amersham. Second, J. Pottle, gardener to B. D. Colvin, Esq., Woodbridge.

Melons, scarlet-fleshed, single fruit.—First, Dr. Cooper, Slough. Second, T. Blair, Kingston.

Figs, two dishes, twelve fruits each, distinct.—Prize, E. Spirey, gardener to J. A. Heublon, Esq., Hallingbury Park, Essex.

Cherries, two dishes, in fifties.—First, R. H. Betteridge, Milton Hall, Stevenage. Second, T. Dawson, gardener to Earl Cowper, Farnham.

Plums, three dishes, distinct kinds, ten fruits each.—Equal First, J. B. Whiting, Deepdean Gardens. Equal First, S. Snow, gardener to the Countess Cowper, Wrest Park, Silcoe. Second, J. Eastone, gardener to Sir J. Duckworth, Bart., Exeter.

Apples, dessert, six dishes, distinct varieties, twelve fruits each.—First, J. Mortimore, gardener to Miss Brown, Carshalton. Second, J. Newton, gardener to G. Graham, Esq., Enfield Chase.

Apples, kitchen, six dishes, distinct varieties, twenty-two fruits each.—First, R. Heather, gardener to Mr. Pilsford, Ember Grove, Kingston. Second, J. Mortimer, gardener to Miss Brown, Carshalton.

Pears, six dishes, distinct varieties, twelve fruits each.—First, C. F. Harrison, Weybridge. Second, W. Holder, Eton College.

Pears, three dishes, distinct varieties, twelve fruits each.—First, J. Holder, Reading. Second, D. Hutcheson, gardener to H. Cotton, Esq., Quex Park, Margate.

Pears, single dish, for weight.—First, C. F. Harrison, Weybridge. Second, G. Grover, Hammersmith.

Pears, single dish, for flavour.—First, D. Hutcheson, gardener to H. Cotton, Esq., Quex Park, Margate. Second, C. F. Harrison, Weybridge.

MISCELLANEOUS.

Fruit trees in pots.—Prize, Messrs. Lane & Son, Great Berkhamstead.

Banana.—Prize, G. Young, gardener to W. Stone, Esq., Havant. *Salween Peach.*—Prize, J. Dwerrihouse, gardener to Viscount Eversley, Heckfield.

Mammoth Gourd.—Prize, S. Bennett, gardener to S. Felton, Esq., Penge. *Cucumbers.*—Prize, J. Horwood, gardener to G. H. Turnbull, Esq., Downe.

Guavas.—Prize, A. Henderson, Trentham. *Various Gourds.*—Prize, —Salter, gardener to A. Sillem, Esq., Sydenham.

Snow's Muscat Hamburgh Grapes.—First, A. Henderson, Trentham. Second, J. Smith, gardener to Lord Tenterden, Henden.

DAHLIAS.

Forty-eight blooms, dissimilar varieties.—First, J. Keynes, Salisbury. Second, C. Kimberley, Stoke Nursery, Coventry.

Twenty-four blooms, dissimilar varieties.—First, J. Keynes, Salisbury. Second, C. Turner, Slough.

Twelve Fancies, dissimilar varieties.—First, J. Keynes, Salisbury. Second, C. Kimberley, S.oke Nursery, Coventry.

Twenty-four blooms, dissimilar varieties (Amateurs only).—First, W. Dodds, Salisbury. Second, Rev. C. Fellowes, Norwich.

Twelve blooms, dissimilar varieties (Amateurs only).—First, T. Charlton, Market Harborough. Second, T. Woodward.

Twelve Fancies, dissimilar varieties (Amateurs only).—First, C. J. Perry, Castle Bromwich. Second, W. Dodds, Salisbury.

SEEDLINGS.

Three blooms of each variety.—Certificate of Merit for Minnie Dodds, W. Dodds, Salisbury. For Black Prince, J. Keynes, Salisbury. For Dahlia Lord Derby, J. Pope.

ASTERS.

Twenty-four German Asters, dissimilar single blooms (quilled).—First, R. H. Betteridge, Milton Hall, Stevenage. Second, L. Besley, East Hendred.

Twenty-four French Asters, dissimilar single blooms (tasselled).—First, C. Sandford, gardener to T. Thomasset, Esq., Walthamstow. Second, C. Wyatt, gardener to H. Wiles, Esq., Epsom.

ROSES.

Thirty-six Roses, distinct varieties, one truss of each.—First, J. Keynes, Salisbury. Second, R. Laing, Twickenham.

Twenty-four Roses, distinct varieties, single blooms.—First, R. Laing, Twickenham. Second, Perkins & Sons, Coventry.

Eighteen Roses, distinct varieties, single blooms (Amateurs only).—First, J. Hollingworth, Maidstone. Second, J. Dennis, gardener to H. Hayward, Esq., Folkington.

HOLLYHOCKS.

Twelve Hollyhocks, distinct varieties, in spikes.—First, Laird & Laing, Forest Hill. Second, W. Chater, Saffron Walden.

Twenty-four Hollyhocks, distinct varieties, single blooms.—First, Minchin and Son, Hook Norton. Second, W. Chater, Saffron Walden.

Twelve Hollyhocks, single blooms, distinct varieties (Amateurs only).—First, H. Glascock, Bishop Stortford. Second, W. Plester, gardener to Mrs. Rush, Bishop Stortford.

VERBENAS.

Twenty-four Verbenas, distinct varieties, five trusses of each variety.—First, C. J. Perry, Castle Bromwich. Second, Minchin and Son.

GLADIOLUS.

For the best collection.—First, J. Standish, Bagshot. Second, Youell and Co., Great Yarmouth.

PHLOX.

Eighteen Spikes, distinct varieties.—First, N. Lawrence, Chatteris. Second, J. Cattell, Westerham.

Miscellaneous.—Extra, G. S. Patey, Stevenage; J. Burley, Surrey; Mr. S. Arkes, gardener to W. Johnson, Esq., St. Mary's Cray.

CARNATIONS AND PICOTEES.

A LADY asked the other day in the pages of THE JOURNAL OF HORTICULTURE relative to the (to her) mysterious death of her Carnations; and another correspondent has sent us to-day a bloom of a yellow Carnation for our opinion (*vide* Answers to Correspondents). These indications of a taste, perhaps a returning taste, for one of our favourite flowers, induce me to have my little say about them. It is most probable that both the florists alluded to have been growing from imported continental seed, and therefore (without meaning any offence), are not yet in the way of real thorough appreciation of this sweet and beautiful flower.

With regard to this continental seed, a great deal either of ignorance, or something worse, is manifested by the vendors of seeds in this country. I have one list before me in which one may exceed about 40s. at the rate of 10d. per seed, and in which you are promised that each packet shall contain flakes, bizarres, &c., as the case may be. Now, in the first place, it is utterly impossible to determine what will be the produce of any one packet—you might as well save seed from a white Verbena and advertise white Verbena seed, as save seed from a flake Carnation and promise the produce to be flakes. And in the second place, any one who wishes to grow these flowers will be supplied at the rate of about 10d. per plant—about the price of the seed—by such growers as Mr. Turner, of Slough, or Messrs. Dodwell and Bayley, of Manchester, with varieties incomparably better than any that can be obtained from foreign seed. I can say this *ex cathedra*. I have seen the produce of some of the best foreign seed and know the results; and I do think the sooner a reform takes place in some of the seed catalogues the better.

Probably there are many who will agree with me in saying this is not the only point on which they need it. If I could induce your subscribers who seem interested in the flower to adopt my advice, I am sure they would never rue the day. But perhaps they will say, "Oh! I have seen them grown, and there was such a fuss with staking, and tying, and disbudding, and layering, and all kinds of processes, that I have no time for it." This may be the case; but then these persons were either decided connoisseurs who would have them in their very best

state, or else they were exhibitors who must take all this care to have them fit for the exhibition table. But it is by no means necessary for ordinary culture; though I rather think, when persons have seen the well-set-up flower that graces a first-rate stand they will want to copy it too.

There are two ways in which they are grown—in the open ground and in pots; and as in an early Number of this year's JOURNAL OF HORTICULTURE I said something about their spring management, I would now add a few words as to their autumn and winter care. They are, like most florists' flowers, peculiarly susceptible of damp, and therefore require to be guarded from that in winter—in fact, my good friend, Mr. Cattell, of Westerham, though a very successful gardener and a large grower for sale of Roses, &c., is never able to winter them, the damp of the valley in which his nursery is situated causing them to fog off during the cold, dark months of winter.

They must be always renewed from year to year by layering. The best plan is to pot the layers into single pots, or a pair in a pot, and then to place them on ashes in a cold frame. They ought to be by this time nearly rooted, and as soon as they are so, it is desirable to pot them off, as they thereby get established before winter, and if the pots get well filled with roots the drainage is better.

As to compost. My plan is generally to empty out one of the large pots in which they have been growing, and use the old stuff, adding, perhaps, a little loam which has been carefully picked over in order to get rid of wireworms. When potted put them into a frame and keep close for a few days, then expose them to the air freely and to light showers, but by no means to the heavy autumnal rains. By the end of October they may be placed in a southernly aspect, where they will have the benefit of the morning sun. They may be watered regularly, but not too frequently—in fact, the pots should be kept rather dry than otherwise. It will be necessary to watch for any appearance of black spots on the leaves, and if they appear, to dust with sulphur; but with good cultivation and care in watering they need not be expected. The same care is necessary, recollect, if you want to grow the foreign ones well, and, therefore, is by no means to be set down as a result of "those troublesome florists' flowers." And after all, if you want to do things well, it is just the same with bedding-out plants; you may have a parterre that looks pretty and gay, but if you would do it *à la* Kensington Gore, your pocket and time will know all about it. Nothing in this world is to be had without trouble, and although, perhaps, the Carnation and Picotee are as troublesome as any, yet they have a peculiar charm which no other flower can give. With regard to those complaints about their being destroyed by worms, as I have already said, it arose from the depredations of the wireworm, often so destructive to our young Wheat, Carrots, &c. The only way to be secure against them is to hand-pick the compost used, or if they are grown in beds to place slices of Carrots or Potatoes in the ground near the plants, these will attract them rather than the Carnation, of which, however, they are very fond. As the colour of the larva is yellow, it is rather easily detected in the ground.

As next month is one of the best periods for obtaining a stock, I add a revised list of sorts, and have been careful to name only those that are of good habit; and may add, to stamp some further value on the list, that it was arranged with Mr. John Ball, the intelligent foreman of Mr. Turner, than whom there is not a better grower or a more ardent florist, not even excepting his employer, at least in these southern parts.

CARNATIONS.

SCARLET BIZARRIES.

Admiral Curzon (Easom).—An old, high-coloured, and very favourite flower.

Captain Thompson (Puxley).—Very fine, large, and bright.

Dreadnought (Daniels).—Large, well-filled-up flower.

Lord Ranelagh (Holliday).—A good and well-podded flower.

Oliver Goldsmith (Turner).—An excellent, high-coloured flower, a capital grower.

William Pitt (Puxley).—A fine flower, but shy bloomer.

CRIMSON BIZARRIES.

Black Diamond (Haines).—A good flower.

Hope (Puxley).—Finely marked and robust in habit.

Lord Milton (Ely).—Good, small in the grass.

Premier (Puxley).—Large and fine.

Tenby Rival (Puxley).—Good and bright.

Orestes (Puxley).—Very bright and large.

PINK AND PURPLE BIZARRIES.

Falconbridge (May).—Good.

Captivation (Taylor).—A nice flower and good in habit.

John of Gaunt (May).—Distinctly marked, and large.

Sarah Payne (Ward).—A lightly marked and ladylike flower.

PURPLE FLAKES.

Ascendant (May).—A large and strong-growing variety.
 Earl Stanford (Elliott).—Full and distinctly marked.
 Mayor of Nottingham (Taylor).—Large, broadly marked with deep purple, good.
 Mayor of Oldham (Hepworth).—Good and clear in colour.
 Florence Nightingale.—Very fine and clear.

SCARLET FLAKES.

Africana (Challingsford).—Very bright and large.
 Christopher Sly (May).—Fine bright scarlet.
 Defiance (Puxley).—Bright and well marked.
 Magnet (Puxley).—A good grower.
 Sir Henry Havelock (Puxley).—Large, well marked, and a first-rate flower.
 Sportsman (Hedderly).—Excellent both in habit and colour.

ROSE FLAKES.

Aglais (May).—Clear and good.
 Poor Tom (May).—A first-rate, deep-coloured and clear flower, quite as good as Flora's Garland, and of good habit.
 Mr. Martin (Elthampton).—Large and bright in colour.

PICOTEEES.

RED-EDGED.

Ada May (Smith).—A light-edged flower of very fine properties.
 Charlemagne (Turner).—Heavy and bright.
 Dr. Pittman (Turner).—Another heavy-edged variety of fine properties.
 Eugenie (Turner).—A rather creamy ground, but good; beaten, however, by a new one to be let out this year.
 Lauretta (Smith).—A large, light-edged flower.
 Lavinia (May).—Medium-edged and good.
 Miss Holbeck (Kirtland).—A light-edged variety of great merit.
 Mrs. Dodwell (Turner).—A good, heavy-edged flower.
 Mrs. Norman (Norman).—Heavy-edged, and an excellent old flower.
 Mrs. Hoyle.—Heavy and good.
 Favorita (Rutland).—A new flower, commended by Floral Committee.

PURPLE-EDGED.

Amy Robsart (Dodwell).—A sweet flower, of excellent properties, light-edged.
 Countess (Fellowes).—Heavy, bright-coloured flower.
 Duke of Devonshire (Bayley).—A heavy-edged northern flower, of good properties.
 Lord Nelson (Norman).—A fine bright purple flower.
 Royal Purple (Hedderly).—Heavy-edged, fine deep edge, ground colour clear, and not inclined to bar.

ROSE AND SCARLET-EDGED.

Miss Muling (Kirtland).—Bright rose, heavy, a very broad petal, first-class certificate from Floral Committee.
 Princess Alice (Kirtland).—Heavy-edged scarlet, very bright, a first-class certificate from Floral Committee.
 Rev. H. Matthews (Kirtland).—Rose edge, medium depth, petal very fine, awarded a first-class certificate.
 Eva (Smith).—Light, rose, very fine.
 Mrs. Drake (Turner).—A flower some years out, but still holding a good place.
 Rev. A. Matthews (Kirtland).—Heavy rose, large, full, and constant, extra fine.

I have endeavoured to confine this list to those which are decidedly good growers, and have not, knowingly, inserted the name of a flower of second-rate qualities, nor any that are extravagant in price.—D., Deal.

CISSUS DISCOLOR REQUIRES STOVE TEMPERATURES.

OTHER persons were as cracked as Mr. Beaton in his late visit to Kew about *Cissus discolor*; the effect is magical. Would a greenhouse that receives no heat in summer do for it?—A SUBSCRIBER, *Croydon*.

[*Cissus discolor* will do no good in any greenhouse whatever. It must have the strong moist heat of a plant-stove or hothouse all the year round, and there no plant is more easy of treatment. It is a good feeder, and likes the same rich, strong loamy compost as the best pot *Pelargonium*. It comes from cuttings as freely as the *Verbena*, and grows as fast as a common *Convolvulus*; and everybody in the kingdom who likes to see a splendid plant grown to perfection should visit Kew to see *Cissus discolor* in the Victoria Lily-house, the next house to the great Palm conservatory.]

EARLY POTATOES IN CORNWALL.

CAN you inform me as to the best time to put in early Potatoes after they are sprouted—say about an inch long or so? My plot is on a cliff, I may say very steep, sloping to the east, and well sheltered; the lower part of the plot rests on the rocks, and the sea is directly under. My neighbour, who has a few little plots adjoining, has never had his crop injured by frost—in fact, there is scarcely ever any frost there. Might I plant as

soon as I like without much danger? What kind of Potato is the Handsworth Early Kidney? is it the earliest grown? We have a Potato grown for the London market which is called "Creeping" and sometimes "Springer;" it comes here very early—in fact some get it in April with no hobbed, only shelter from the frost in early spring. I have never seen it in any catalogue.—M. ANTONY, *St. Ives, Cornwall*.

[A place in England where "there is scarcely ever any frost!" We really are not good authorities to advise about garden doings in such a locality, for we have had no experience in such "a happy valley." We presume that it would be useless to plant sprouted Potatoes until early in next year; but as to the *last* time, we have consulted a good authority in your neighbourhood, and this is his reply:—"Taking an average of seasons I have found the first week in March the best time for planting sprouted Potatoes; but where a large breadth has to be done an earlier commencement is sometimes made—say ten days before; and occasionally those planted a week later may turn out better by escaping the hoar frost, to which even our Cornish climate is subject. The variety called 'Springers' or 'Creepers' is almost exclusively used for sprouting; they are placed on shelves in well-ventilated and light outhouses, and frequently in ten weeks after planting a good crop is obtained. A few spots on the sunny side of a cliff on the northern coast may with care produce very early tubers; but your St. Ives correspondent must not expect to rival his neighbours in the vicinity of Penzance, whose southern aspect is so much in their favour. The Handsworth Kidney is an early kind; but for sprouting, and, consequently, the first crop, nothing is found to beat the Creeping.—W."]

THE HOLLYHOCK.

THIS now popular autumnal flower was introduced to our gardens upwards of three hundred years ago. Little improvement took place in its properties till about fifty years ago, when some curious dark varieties appeared in some few of our Scotch gardens. Forty years ago the writer of this note introduced several of these into Hampshire; but little attention was paid to them even by the then florists about Winchester. Pinks and Carnations were then in great repute; but even they became eclipsed by the Dahlia, which became the leading flower of the day. The first impetus given to the Hollyhock in England is due to Mr. Charles Baron, a humble shoemaker at Saffron Walden, in Essex, who, following a course of culture peculiar to himself, soon astonished the floricultural world with flowers possessing characters for colour and form previously unknown. Mr. William Paul, of the Cheshunt and Waltham Cross Nurseries, was amongst the first in the English trade who took up this long-neglected flower, and he soon became eminent in its cultivation, and, we believe, was the first who wrote a work ("An Hour with the Hollyhock") on its properties and management. It was understood at the commencement of its new era that the English and Scotch breeds had no very intimate relationship with each other, or, according to florist phraseology, they were of different strains. Indeed, Mr. Paul was of opinion that even two distinct strains existed in Scotland; the varieties of the one strain, although superior to the common English kinds, were inferior to those of Mr. Baron; those of the other he suspects sprung from Mr. Baron's stock. Mr. Deans, of Jedburgh, Messrs. Ballantyne, Dalkeith, and Messrs. Downie, Laird, and Laing, were amongst the first and leading parties in the progress of improvement; and it is probable now that this flower has attained almost all the perfection it is capable of; for we believe there is a point to gain in the case of all florists' flowers, beyond which a retrograde action will take place. How far we are from that point at present it is impossible to say.—(*Scottish Farmer*.)

A LONG ISLAND MARKET-GARDENER.—Mr. Charles Backus, a Long Island farmer, has under cultivation eight large farms devoted to raising vegetables for New York market. During the past year he has raised forty acres of Potatoes, fifteen to twenty acres of Parsnips, Carrots, and Beets, fifty of corn, eighty of Cabbages. One hundred acres are devoted to Asparagus, and forty to Currants. Three acres and a half are under glass, for raising early salad, Radishes, Cucumbers, &c. From three hundred to three hundred and fifty labourers are employed in

the summer season, and twelve large waggon-loads of produce are every day sent to the city. His business in a single year amounts to 100,000 dols. Only thirteen years ago two waggon-loads per week were the whole amount of produce raised by Mr. Backus, who has every year since extended his operations, until they now probably exceed those of any market-gardener in the Union.—(*Genesee Farmer*.)

PLANTING NEAR THE LIVERPOOL COAST.

BEING about to plant high land, exposed to sea gales from the west, and without shelter on any side, I think of first getting up to the height of about 5 feet, for shelter, Spruce in rows from north to south, about 8 feet apart. Is this a good plan? or what other sort of tree, or other mode of obtaining shelter is preferable?—AN OLD READER.

[Yours is an inhospitable quarter to get up a plantation, and the surest way would be to notice what kinds of trees do stand the sea breeze thereabouts. Even as far inland as Lord Sefton's and Knowsley, would give you indications of what we mean. But, meantime, instead of Spruce we would take a lot of *Pinus maritima* to begin with, and plant them just as you intended to plant the Spruce.]

HEATING A VINERY AND CONSERVATORY.

I AM about changing my residence, and at the house I am going to is a good vinery with young Vines, and divided into two parts by a partition. It has a south aspect, and is heated by a flue. An entrance is at the east end, and another through the dining-room at the west end. In the vinery against the north or back wall is a raised bed in which Vines have been grown; then the walk and the remainder of the floor space is occupied by the flue. I wish to grow flowers in the part adjoining the dining-room, and Vines in the other part. Now, what is the best and most economical plan of heating both places, the one independently of the other? for I must, I suppose, heat the Vines in summer and keep them cool in winter; in other words, put no fire to the Vines in winter, or at the time the flowers require it. I was thinking of putting a small boiler over the fire which heats the flue, with two ranges of pipes, one range to each place, and taps to each range, so that I could shut off the hot-water from either place, and let it circulate in either as I chose. Will you also inform me what you consider to be the best plan of a stage for the flowers? and how many Vines I should put in the part selected for the Vines? The Vine stems are uncovered for about 30 feet before they enter the vinery. Will this be detrimental to them? The house is 9 feet 6 inches high in front, and 13 feet high at the back.—R. W.

[Why not let well alone? If the flue is sound and good you may secure all you want, and have Vines in both houses and flowers too. The Vines will not be benefited by having no fire in winter. If you do not raise the temperature above 45°, the Vines will not start before their usual time. The house next the furnace will be the hottest, and here you might have Grapes in August, and in the latter house in September and October. You could keep your earliest flowers in the first house, and as the heat and shade were too much for them, remove them to the second; and that having been devoted to harder and bedding plants, could in April or earlier be moved under shelter out of doors. A great deal could be done in such double house, with a fair flue as it is now. But you wish to heat with hot water, and heat the one independently of the other. Then, instead of using the present furnace, we would form a new one with a boiler near the centre, and if you wished to force the Vines much, you might take the flue across to the present flue in that department, and then you would have both flue and pipe heat there. By having an open cistern inside the house, or even valves without a cistern, you could heat either place, separately or together, and without any waste of piping. For mere Vines the present arrangement would answer; for more ornament, and opening from the dining-room, the path 22 inches would be too narrow for ladies to move at all. A narrow stage at the back, and a path at least 30 inches would suit better; but if Vines are to be continued, and walking room was not needed, we would leave the bank as it is, and place a stage of five shelves and a foot apart over it, which would hold many plants. The place over the flue could also have a shelf. If the flue was removed

there would be plenty of room, and a six-inch shelf might pass along the front. We presume the uncovered Vine stems are outside. If the border is deep enough, encase the stems in wooden boxes, with an open side next the wall, and pack with sawdust.]

EFFECTS OF THE LAST WINTER IN LEICESTERSHIRE.

(Continued from page 397.)

Larix europæa, *Abies excelsa*, and *Pinus sylvestris*, uninjured.

Taxus japonica, *T. canadensis*, *T. Harringtonia*, *T. coriacea*, *T. sempervirens*, *T. elegantissima*, *T. Mackaya*, *T. baccata fastigiata*, *T. baccata fastigiata foliis argentea variegatis*, *T. baccata fastigiata foliis variegatis*, each from 2 feet to 10 feet high, uninjured.

Cerasus vulgaris flore pleno, *C. lusitanica*, and *laurocerasus*, 10 feet each, uninjured.

Tilia europæa and *T. europæa laciniata*, each 12 feet, uninjured.

Acer platanoides laciniatum, 20 feet, uninjured.

Ulmus suberosa foliis variegatis, 10 feet, uninjured.

Fagus sylvatica purpurea, 20 feet, uninjured.

Platanus orientalis, 20 feet, parts killed.

Laurus nobilis, 5 feet, killed to the ground.

Syringa vulgaris, *S. vulgaris alba*, *S. persica*, 10 feet each, uninjured.

Pavia rubicunda, 10 feet, uninjured.

Viburnum tinus, and *V. tinus lucidum*, 8 feet each, killed to the ground.

Rhododendrons, all the common sorts, with *R. dauricum* and *R. dauricum atro-virens*, uninjured. *R. Russellianum* and *R. pardolotum*, parts of last year's growth killed, and lost their leaves, but have a fresh crop of them. *R. eiliatum*, tops of branches killed, but growing well. *R. nivaticum*, *R. coriacea*, *R. guttatum*, *R. altaclarens*, *R. Nobleanum*, *R. stramineum*, *R. Cunningham's dwarf*, *R. Broughtonii*, *R. Victoria*, *R. atro-purpureum*, *R. hirsutum*, *R. ferrugineum*, *R. ferrugineum album*, *R. John Waterer*, *R. calyculatum*, uninjured, except *Nobleanum*, slightly.

Azalea refulgens, *A. ne plus ultra*, *A. præstantissima*, *A. venusta*, *A. Morterii*, *A. ardens*, *A. coccinea*, *A. alba*, *A. pontica*, *A. Taylor's Red*, uninjured.

Erica codonoides (3 feet), *E. tetralix rubra*, *E. tetralix alba*, *E. cinerea*, *E. cinerea atro-purpurea*, *E. cinerea coccinea*, *E. arhorea*, *E. vulgaris purpurea*, *E. ciliaris* and *australis rosea*, killed. *E. vulgaris nana*, *E. vulgaris coccinea*, *E. Hammettii*, *E. carnea*, *E. ramulosa rubra*, *E. Alportii*, *E. tetralix*, *E. tetralix carnea*, *E. cinerea alba*, uninjured. *E. tetralix Mackiana*, injured. *E. stricta*, *E. mediterranea*, *E. Irish mediterranea*, *E. vagans*, *E. multiflora*, *E. australis* (5 feet) killed to the ground.

Calluna vulgaris, *C. vulgaris decumbens*, *C. vulgaris aurea*, *C. vulgaris foliis variegatis*, *C. vulgaris spicata*, *C. vulgaris alba*, *C. vulgaris flore pleno*, *C. vulgaris tomentosa*, *C. vulgaris coccinea*, *C. vulgaris aerotina*, uninjured. *C. vulgaris atro-rubra*, killed to the ground.

Gypsocalis carnea, *G. alba*, uninjured. *G. alba*, injured. *G. rubescens*, killed. *G. vagans*, *G. multiflora*, and *G. purpurascens*, killed to the ground.

Menziesia empetrifolia, uninjured. *M. polifolia*, *M. polifolia alba* and *M. globosa alba*, killed to the ground. *M. nana*, killed.

Gladioli *Don Juan*, *Couranti fulgens*, *Penelope*, *Mathilde de Landevoisin*, *Amabilis*, *Egerie*, *Monsieur Blouet* and *Imperatrice*, uninjured.

Lilium Wallichianum, uninjured.

Roses.—Those marked *d* are dwarfs; and standards are marked *s*. *William Jesse*, *s*; *Reine de Bourbon*, *s*; *Augustine Mouchelet*, *s*; *Baronne Prevost*, *s*; *Duchess of Sutherland*, *s*; *Mrs. Elliott*, *s*; *Dupetit Thouars*, *s*; *Menoux*, *d*; *La Reine*, *s*; *Latifolia*, *s*; *Marie Chargé*, *d*; *Comte de Kambuteur*, *s*; *Emilie Courtier*, *s*; *Robin Hood*, *s*; *Augustine Marget*, *s*; *Soliel d'Austerlitz*, *s*; *Boule de Nanteuil*, *s*; *Dr. Marx*, *s*; *Smith's Yellow*, *s*; *Acidalie*, *d*; *Edouard dea Fosses*, *d*; *Fortuni*, *d*; *William Griffiths*, *s*; *Queen Victoria*, *d* and *s*; *Paul Ricaut*, *d* and *s*; *Souvenir de Malmaison*, *s*; *French Crimson*, *d*; *Comte de Nanteuil*, *d* and *s*; *Celina*, *d*; *Cramoie Superior*, *d*; *Souvenir de Leveson Gower*, *d*; *Mrs. Bosanquet*, *d* and *s*; *Pompone*, *d*; *L'Elegante Nouvelle*, *d*; *Etdard de Marengo*, *d*; *Etna*, *d*; *Sir John Franklin*, killed. *Fortune's (salmon)* *d*; *Rampant*, *d*; *Queen of the Belgians*, *d*; *Ayrshire Rose*; *Angle*, *d*; *Crimson Boursalt*, *d*; *Adelaide d'Orleans*, *d*; *Ele-*

gans, D; Ruga, D; greater part of each killed. Rivers' Musk, D; Souvenir de Malmaison, D; Général Bedean, D; Comte d'En, D; Madame Margat, D; Eclatante, D; William Griffiths, D; Gloire de Rosamenes, D; Crimson (Moss) D; Blush (Moss) D; Comte Brobinsky, D; Madam Rivers, D; Auguste Mie, D; Fellenberg, D; Général Jacqueminot, D; Madame Bureau, D; Reveil, D; Archduke Charles, D; Alexandrine Bachmetoff, D; Augusta, D; Aurore du Guide, D; Gloire de Dijon, D; Lamarque, D; Julie de Loynes, D; and Monthly Chinas of twenty years' growth, killed to the ground. Fulgens, s; Celestine, D and s; Uniques (Provence, s; and Moss, D); Charles Dural, s; Madame Laffay, D and s; Bouquet de Flore, s; Fimbriata, s; Mrs. Cripps, s; Géant des Batailles, D and s; Louis Buonaparte, s; Crested Moss; Coup d'Hébé; Austrian; Harrisoni; Young and Jenny Lind, half-standards; Bath, D; Luxembourg, D; Freoch White, D and s; Pina IX, D and s; Bernard, D; Persian Yellow, s; Spinossissima Sulphurea, D; Général Drouot, D; Lanesi, D, s; Jules Margottin, D and s; Presque Partout, D; Celina Dubois, D and s; Comtesse de Murinais, D; Rose du Roi, D; Kean, D; Léon des Combats, D and s; George IV., D; Clara Sylvain, D; Caroline de Sansal, D; Baronne Hallez, D; Louis Peronny, D; Princess Clementine, D and s; Général Castellane, D; Miss Glegg, D; La Quinic, D; Vorace, D; Madame Angelina, uninjured. Most of the dwarfs that are killed were budded or grafted close to the ground.—J. G.

[We shall be much obliged by the communication you offer.—Eds. J. OF H.]

WINTERING CALADIUMS.

OBLIGE me by informing me the best way to preserve Caladiums during the period they are at rest in winter, as I lost many very valuable varieties, and could assign no cause for the bulbs decaying into a soft pasty pulp. Would it do to keep them in a growing state and a moderate stove heat, or would you prefer drying them off?—H. MARSHALL.

[So far as the safety of the roots is concerned, it would be safest to keep the plants growing slowly in winter; but they frequently do not grow so strong afterwards, if they do not have a season of rest, comparatively speaking. While resting they will not endure a low temperature, nor yet should the tubers be quite dry. It is best to lessen watering in autumn, and as the leaves decay in autumn to remove them; but if one or two little ones should show signs of vitality, it is as well to keep up a languid growth, neither giving much water nor yet letting the plants get quite dry. From 60° to 65° is as low a temperature as the tenderest ought ever to have. If the temperature is lower, and the soil at all moist, they will get soapy as you describe.]

CHANGING FROM FLUE TO HOT-WATER HEATING.

My greenhouse plants suffered so much last winter from the long-continued firing, that I wish to alter the mode of heating from a furnace and flue to hot water. The greenhouse is a span-roof, 16 feet long, 13 feet wide, 6 feet high in front, and 9 feet high at middle, or contents 1770 cubic feet. It is glazed with small squares, so that a quantity of air is always passing out and in; besides which, except in extremely cold weather, I like to have a little air on.

I want you to tell me where I can get a portable boiler at a reasonable price. Having to attend to the fire myself, I should prefer it inside the house, as then it is more comfortable, and I am sure not to be smothered with smoke, which I might be if I left it to another person. What I want to know is, Where to get the boiler? what sized pipe to go once round in order to raise the temperature to a maximum of 25°? whether zinc or galvanised iron piping with soldered joints (the longitudinal joint turned in and soldered), or galvanised cast rain-water pipe, with lead poured into the joints, would answer? The sheet-piping is for three-inch, 1s. 7d.; four-inch, 2s. 3d.; five-inch, 2s. 9d. per yard: cast galvanised, 2s. 5d., 3s. 11d., 5s.—a great saving when compared with iron pipes, which want painting and smell so long after it.

Will you likewise be good enough to tell me if the new grass substitutes—*Spergula pilifera* and *saginoides*, and *Sagina procumbens*, are fitted for six-inch verge lines instead of Box? and

if so, may the seed be sown now for putting out in March or April?—J. R.

[If there had been due care taken not to have the flue too hot, and evaporating-pans used on it, we do not see how the evils complained of should have necessarily happened; nor do we see how mere hot-water heating will remedy the evil, as the heat, if not counteracted by moisture, will be equally dry. The advantages are, that the pipes will not absorb so much moisture from the house; and the heat given off, though not pure, will be free from some of those vapours that come from a flue much heated.

We are sorry we can say no more upon a portable boiler than what our common and advertising columns afford. If the boiler is to be inside the house, we certainly should like it to be abut off in a corner by itself. Unpleasant fumes are apt to escape at feeding and cleaning times, and we do not consider that even the plan recommended by our correspondent would be effectual. The funnel would require to have a bottom which would shut as the top was opened; and even then there would be no chance of stirring the fire, getting out clinkers, &c. With these seeming drawbacks we have nothing to say against the proposed boiler made of galvanised iron, only that we have not proved how such a boiler would stand the fire, and we and many more would be glad if our correspondent would supply the deficiency by his own practical experiment. We have no doubt that galvanised iron pipes would answer very well, and if kept off the ground both they and zinc last a good while; but we do not think they are either so lasting, nor so far as galvanised iron is concerned, do we consider them much cheaper at the prices he quotes than cast metal pipes as supplied by Mr. Jones and other large makers. One shilling a-foot used to be a common price for four-inch metal pipes; at any rate, we are misinformed if such pipes could not be obtained at less than 3s. 11d. per yard. In their case the socket-joints are all ready; and if rammed home with oakum the joints may be filled with Portland cement. Be this as it may, we would advise our correspondent not to depend on one large pipe all round for such a house as he describes, as the more water such a pipe contains the longer will it be in heating. We would recommend two three-inch pipes all round, both flows, and both becoming returns near the boiler. Of course, by having the boiler inside you dispense with the flue. We question now, if a boiler placed above the furnace, would not in the end be best; but we would not like to damp your enthusiasm for your own plan, and shall be glad to learn how it succeeds.

We can say little more about the *Spergula*, &c., than what has appeared in our pages. It does not seem to succeed well in some places. For trim six-inch verges that were always to be kept artistic, we would incline to favour the Box. The seeds may be sown as you propose.]

HEATING A SMALL GREENHOUSE.

WILL you tell me the best and most economical way of heating, to keep out the frost, a small greenhouse 15 feet by 9 feet? I had a small hot-water apparatus where I was living last year, but I could never succeed in keeping the fire in all night, and very seldom could get the heat up to 60°: besides, if I shut the door, it then got too hot, and boiled over; the fire and boiler were like two conical boilers turned upside down, with the chimney through the bottom, and the fire inside one, and the water betwixt the two; but it was a great trouble to keep it right, and a great danger from the boy shutting it up and leaving it, when all the water would boil over, and if not discovered would have burst.—C. L.

[A small brick Arnett's stove would heat such a house, though we hardly know what you wanted 60° for in a greenhouse; from 45° to 50° in winter would be high enough. We suspect there was nothing wrong in your hot-water apparatus but want of attention. With the furnace-door shut, and the ash-pit door also shut, or the least opening in the regulator, and with only an inch or so left open in the damper, we cannot see how there need have been such difficulties with the fire. The expansion could also have been guarded against, by either not filling the flow-pipe quite full, or having a cistern a couple of feet square at the farthest point from the boiler; or, if the supply-pipe was close to the boiler, and the pipes close all round, then there should have been a pipe, like a small gas-pipe, fixed on the highest point of the flow-pipe, and the farthest from the boiler, rising upright and passing through the wall on to the outside of

the house. In small places, even then, the fire should not be put on: that would do to heat some 500 feet of piping or more. If you have the hot-water apparatus we would try again. For keeping the plants the brick stove would do, and you might have the feeding-door either inside or out.]

TIMBER FOR STOVE AND GREENHOUSE BUILDING.

I AM now erecting two forcing-houses, the timber used for rafters being best Petersburg red deals, with our own-grown oak for sills and wall-plates. When these are finished we shall begin building two span-roofs of a large size; and being anxious to use the best timber that can be had, I would thank you for your advice as to the description of timber most suitable. A few pounds in the cost of the same would not deter us from erecting them with the best materials.

What do you say to Pitch Pine of the best quality? it is an extremely resinous wood, and to all appearance would last for ever. I have not seen it used for the purpose, but some tell me it would answer well; others say it would not take the paint, or that after it was painted the sun would cause the resin to exude; while others tell me it is more subject to dry rot than any other wood when exposed to heat and damp.—JOHN STEVENS.

[We wish our correspondents and coadjutors would give us their experience. Our own would lead us to prefer the first quality of red deal, though most of these houses are built with good seconds. We have no experience of the dry rot as applicable to the Pitch Pine; but we have found that though resinous timber is the most lasting if left to itself, merely planed, and, perhaps, slightly varnished, yet the resin will in general force its way through all kinds of paint when the weather is hot, and thus so far spoil the neat surface the paint is intended to give.]

NEW BOOKS.

ORCHARD-HOUSES.*—It would appear that the taste for orchard-houses is not on the wane. We have now before us another advocate of this method of cultivating fruit trees written by one well qualified to speak on the subject, and who has done his work in a clear and masterly way. In this pamphlet we have the whole system of orchard-house cultivation brought before us in language which nobody can mistake. The style is terse and to the point, and the instruction is so perfect as to enable any one who previously knew nothing of the subject to become master of it with very little trouble. We give the following as a specimen of the work:—

"*Management of an Orchard-house.*—After your house is built, if not before, you will have to determine the fruit to be grown in it. Tastes will differ, of course, but the Peach, Nectarine, and Apricot may be considered the aristocracy of the orchard-house. Plums bear enormous crops, but are not increased in flavour. Pears are very handsome, but ours were so inferior in flavour, that we discarded them. Both Plums and Pears might be grown in the house till all danger from frost was over, and then turned out to grow and ripen their fruit, which would give more room to the Peaches and Apricots. I will suppose Peaches only to be grown, and confine my remarks to them, as the same management applies alike to Nectarines and Apricots. Buy your plants, if possible, early in the autumn; you will not only have a better choice, but plants potted late seldom set their fruit well the following season.

"After the first year, if it is intended to pot or only top-dress the trees, do it before the leaves are quite off, or as soon after as possible. Choose a good turfy loam (the top spit from a clay pasture is the best), and add to it about a fourth of rotten manure: this will be better if mixed some months beforehand. Pot very firmly. If your soil be light, you can hardly make it too solid. Of course, the soil must be moderately dry. No plant enjoys tempered mud. A good rule by which to judge of the state of the soil is this:—If a handful, grasped firmly retains its shape, but separates when allowed to drop on the floor, it will not be too dry or too wet. If Peaches are growing in borders, or against the walls, it is very necessary to keep the ground firm about their roots; trample the soil well when in a dry state, and if the soil be light use a rammer to make it solid. Paint the plant when the leaves are all fallen with a mixture of Gishurst Compound, 6 ozs. to a gallon of tobacco water, to which are added a little clay, cow-manure, and soot. If you think much of the trouble of this operation, syringe with the Gishurst and tobacco water; and it during winter you perceive any copper-coloured fly feeding on the shoots of your plants, repeat the syringing. When the plants have been painted or syringed place them closely together in the middle of the house, and cover the pots well with leaves, hay, or straw, to keep them safely from hard frost. During frost the house had better be closely shut, and open only in mild weather. If the soil in the pots be moist when covered with leaves in autumn, they will, probably, not require watering more than once or twice during the winter; if not dry as dust, the plants will be none the worse for having been kept without much water whilst destitute of leaves. When the

buds are swelling, prune the trees if they require it, and put them in the places which they are intended to occupy during summer. In pruning care should be taken to cut to a wood-bud, otherwise all the fruit on a leafless branch will fall afterwards. However pruned, a few branches will be in this leafless state at the time of blooming; these may be at once cut back to where there are leaves. The later your plants bloom the better: the house should, therefore, be well ventilated, and kept cool till the plants are in bloom. From the period the flowers are fairly out till the fruit is set is the critical time of orchard-house management. Let us suppose the house all in order, and the plants coming into bloom: cultivate them as if they were a number of Geraniums. If it is warm out of doors—that is, if the wind is soft and mild, ventilate freely; but do not, because the sun shines, subject your trees to a cold east wind."

ELM GRANGE.*—This is a book for children, but we notice it for more reasons than one. In the first place, it fosters in young minds the love of the country, and leads them to delight in rural pursuits; in the second place, it is written by the lady who has been benefiting our readers by directions on the arrangement of flowers in bouquets and vases; and lastly, it is an excellent example of the improved juvenile literature by which children are now benefiting. "Watts," says Dr. Johnson, "condescended to lay aside the scholar to write little books adapted to the wants and capacities of children," and we feel that it is similarly condescending and kindly in "E. A. M." to devote her good taste and keen appreciation of the beautiful to the gratifying and benefiting of our little ones. "Elm Grange" is an admirable book for effecting these praiseworthy objects, and we are pleased with ourselves as well as with the author to be able to acknowledge that the genial truthful spirit that characterises every page led us on from one subject to that following until we found that we had read the whole.

THE FAMILY SAVE-ALL.†—This is one of a series of books which have nothing to recommend them but their taking names. It is a very unreliable book; for it often states as facts what are not facts, and when it gives a reason for an effect it usually gives a wrong reason.

For example, at page 239, to banish red spider from hothouses "the simple process of cutting off the infected leaf" is recommended; and it is added, "By carefully pursuing this amputation plants will become remarkably healthy." What do you say to that, gardeners?

At page 209, "If (frozen Potatoes are) thawed in open day they rot, but if in darkness they do not rot."

Now, as all the foregoing is totally erroneous, and as we could quote pages more equally devoid of correctness, we need occupy no further space, for what we have quoted will be a sufficient warning.

THE GARDENER'S ANNUAL FESTIVAL AT PARIS.

ON Friday, August 30th, the gardeners of Paris, and their friends, held high festival in the Bois de Boulogne. Their fête day is honoured by the patronage of two saints, a lady and a gentleman, Madame Rose and M. Fiacre; and the most elegant decorators in the world very properly take an opportunity of giving the outside world a specimen of their artistic talent. A large ear is provided, and is made to bear such a profusion of floral treasures as would almost fit it to convey Flora herself to a morning concert on Olympus. The form seems to be fixed, but the mode of execution varies with the taste and ability of the parties entrusted with the beautifying of the chariot. This year the decorators were very happy. The vehicle was a simple platform on four wheels, hidden by a sky-blue curtain of silk, which was ornamented with gigantic and elegant wreaths of splendid flowers; on each side were the arms of the city of Paris, formed in blossoms, with the cyphers of the tutelary saints in berries of the Mountain Ash. On the platform was a raised dais or plinth, which at a little distance seemed to be covered with a gorgeous Persian carpet, of which the colours were well selected and highly effective; the whole of this was composed of very small flowers, arranged so as to form a perfect and brilliant mosaic. On the dais stood an enormous vase or tazza, two stages high, filled with the choicest exotics, the receptacle being composed of a strong framework, covered with evergreens. The whole must have been at least 12 feet high, and exhibited an immense amount of taste, skill, and labour. As usual, the car was drawn to the front of the church, at Passy, where a special

* *Elm Grange; or, A Summer in the Country.* By E. A. M., Author of "Sympathy," &c. London: Hogg & Sons.

† *The Family Save-all, a System of Secondary Cookery, &c.* By the Editor of "Enquire Within," &c. London: Kent & Co.

* *A Few Hints on the Construction and Management of Orchard-houses.* By J. R. Pearson. London: Hall, Virtue, & Co.

mass was performed, and there the procession made its way to the islands in the Bois de Boulogne, where the fête takes place, and which consists of a concert, a dinner for a thousand people, games on the water, fireworks, and a grand ball, where all the flower of the horticultural family of Paris is to be seen in brilliant bloom. Upon the present occasion there was an additional feature. A bridge of boats decorated in every part with garlands and plants was thrown over to the island, and the floral car was drawn down the steep bank and over the lake, amid the fears of the spectators for the stability of the great vase and its contents. A horrible moment of suspense occurred when it was found that the top of the great perambulating bouquet would touch the large garland which hung over the entrance of the bridge; the two portions of the decorations came into contact; but, as both possessed the quality of the rush and not of the oak, no mischief occurred, and the four greys drew the chariot of the flowers safely up the opposite bank, and it was soon placed in a post of honour at the end of the great banqueting-room. The weather was magnificent, and the fête passed off extremely well; and the treasury of the Society for relieving the distresses of the poor brethren of the craft will be some thousands of francs richer for the eating, and drinking, and dancing of the young, the happy, and the prosperous portion; while Saint Fiacre and Sainte Rose may smile complacently on their *protégés*.—(*Daily Telegraph*.)

ROOF VENTILATION AND RED SPIDER.

I GATHER from Mr. Pearson's note, in page 395, that he found roof ventilation necessary principally on account of red spider attacking his Cucumbers. In orchard-houses I have again and again said that in span-roofed houses roof ventilation is entirely unnecessary, and often leads to an addition to the builder's bill without the least advantage accruing to the cultivator. I have twelve span-roofed houses, some of them 12 feet, some 14 feet, some 20 feet, and some 24 feet wide. These are all without roof ventilation. In two of them, each 70 feet by 20 feet, Vines are trained to the roof and the houses heated, yet there is no red spider or any other pest, even after this hot summer; so I beg to tell your readers, with greater firmness than ever, not to touch the roofs of their span-roofed houses. Lean-to houses, where the back walls cannot be perforated for sliding shutters, must of course be ventilated at the top of their roofs.

By placing openings in the roof of a span-roofed house a great advantage is thrown away—the hottest part of the house is under the apex and extending downwards about 18 inches. On the 27th inst. I elevated a thermometer, shaded from the sun, in a span-roofed house 100 feet by 24 feet, somewhere about its centre: to within a foot of the apex of roof it reached 96°, while one below at 5 feet from the ground stood at 88°. Now, in the increased temperature near the roof Grapes would ripen earlier, Cucumbers would grow longer and faster. By opening the roof these advantages are thrown away. This is something like uncorking a bottle of fine old port the day before it is wanted to let off and waste its strength.

With regard to the attacks of the red spider, they are so easily warded off if taken in time, that I have, after much consideration, placed him foremost in the rank of benefactors to the young gardener—he makes him watchful and vigilant to an extent scarcely credible; for if he once gets a firm hold he is most difficult to oust, there seems scarcely any possibility of destroying him without destroying the tree. With the red spider prevention is everything—ten times better than any cure. If my friend Pearson early in the month of May had used a preventive no spider would have necessitated disturbing the roof of his house.

Preventive No. 1.—A light shelf of zinc or tin 8 inches wide suspended from the ridge-board so as to hang in the centre of the house, and about 18 inches from the apex of roof, should be covered with flowers of sulphur to about one-eighth of an inch deep and suffered to remain there always. Some fresh sulphur may be added once a month during the summer. If the house is devoted to very early crops of Grapes, Cucumbers, or Peaches, the shelf of sulphur may be put in action the beginning of April. I need scarcely add that the same means may be applied to lean-to houses.

Another mode of red-spider prevention by sulphur is by placing pans of water in flues, on hot-water pipes, or on any place where the water gets tolerably warm—say to 112° or more, and covering the surface with a thick coat of flowers of sulphur,

renewing it as it subsides, which it does very gradually. Pans of water with flowers of sulphur on the surface may be placed in Melon-frames, or in any place where the water can be warmed by the sun or otherwise, so as to form a most certain spider preventive. I cannot conclude this without telling you how I came to think of sulphur on warm water to prevent red spider.

I have a vinery some 40 feet long and 12 feet wide, in the centre of which is a brick Arnott's stove. It has done its work well, for I have generally commenced forcing my Grapes in January and have cut in June. For the first three or four years (the stove has been in use ten years), I was much troubled with red spider on some Muscat Vines in the centre of the house over the stove. In spite of syringing so as to nearly spoil my Grapes, and painting the chimney and part of the stove very guardedly with lime and sulphur, Mr. Spider would come when the weather became hot in July. I have not yet said that a large milk-pan, holding, say, four gallons of water, was a fixture in the top of the stove, standing in a thick bed of sand, which was placed on the iron roof of the stove; otherwise it would have cracked if in contact with the iron. All at once it occurred to me in a fit of (I must not desecrate another word) desperation, that as I dared not place sulphur on the hot sand, why not place it on the hot water, as I knew it would float? and so I threw a pound of flowers of sulphur on to the hot water. This was about six years ago; the same stove is in use, the same coating of sand is on the stove, the same milk-pan is in the same, and every year about the end of April my man Friday fills the pan with water, strews a pound of sulphur on the surface, renews it twice or thrice during the summer, and red spider, even on the Vine leaves within 3 inches of the chimney, is never seen, and never has been seen, since the sulphured water has been in its place.

In all houses not heated by flues or hot water, sulphur should be placed on shelves or on pieces of slate fully exposed to the sun, so that there is a gentle constant evaporation of its fumes. In Melon-frames and in very confined places even this may in hot days become too powerful. In all such places flowers of sulphur floating on pans of water may be employed—in fact, made the regular routine of cultivation. The gardener may then, as they say on hatchments in Latin, “rest in peace.”

As I expect to have a statue erected to my honour in the garden at Kensington, or in some other grand place, for my discovery (?) which, I dare say, has been in use for scores of years, I shall not as usual give “T. R.” as my signature, but—THOS. RIVERS.

PROPAGATING PHLOXES.

A FORTNIGHT ago you speak of the present time—“And for a month again, will be the time for propagating Phloxes.” Which would you recommend, the offshoots that start from the flowering stem, or the flowering stem cut into lengths of two joints, as best for propagating under a hand-glass in the open border?—W. JOHNSON.

[The sucker-like shoots which rise from the collar, or bottom part of the new Phloxes, are the best shoots for cuttings. But young shoots from the stems will also root, and if the flowering principle is not yet in them they will make second-best plants; if it is they are hardly worth doing for a private collection. Young shoots from the very bottom will also do well for cuttings till the middle of April, only the later they are the less growth will they make the first season.]

A DESIGN FOR A ROSE GARDEN.

The accompanying plan and sketches for a rosery were designed by Mr. Herman Seitz (of Munich), once residing at Chatsworth, as suitable arrangements for displaying a goodly variety of the numerous beautiful climbing, pillar, dwarf, and standard Roses, which, through the assiduity and discrimination of our great Rose culturists, are now worthy of a more distinguished position in the flower-garden scenes of England.

Previous to adverting to details, however, it may not be considered out of place to direct an observation or two in reference to the present position of “La Reine des Fleurs” in the majority of our gardens.

It will not be controverted—albeit, the numberless “beauties of the Rose,” Messrs. Rivers, Lane, Paul, Francis, Wood, &c.,

have brought to our garden gates, as it were—that the queen of flowers is too generally permitted, or rather compelled, to occupy a situation inferior to her regal rank, and the very reverse of dignified; nor will it be gainsayed that there exists scarcely a garden of any pretensions, where the introduction of *Roses en masse* might not advantageously be effected.

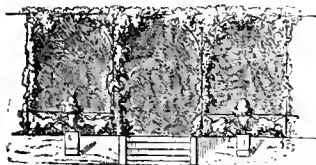
It is quite true, however, that occasional very laudable exceptions to the state of things just alluded to might be enumerated. For example, there is or was at Nuneham, Oxfordshire, a rosarium reflecting no small credit on its artist; and the same might be said of a unique little Rose garden which I remember to have seen, some few years ago, at Flitwich, Bedfordshire; and, doubtless, of other gardens also, in various parts of the country, which it may not have been my good fortune to see.

Still, after having from time to time visited some of the principal gardens in Britain, and learnt somewhat of places that have not come under my own immediate observation, I would I could, but regret I cannot, adduce a single instance where, in my humble estimation, the Rose receives due homage! On the contrary, I cannot refrain from asserting my conviction and surprise, that, with a very limited number of exceptions, the glorious tribes of the Rose experience manifest indignities throughout the entire range of our flower gardens; and, moreover, that in the grandest places, as well as in more circumscribed garden scenes, there is apparent a marvellous absence of concentrated Rose gardens.

The design for a rosery now presented, neither assumes a remedy for all this, nor presumes perfection in displaying Roses to advantage upon our lawns and shrubberies—far from it; but it is premised the plan may not be deemed otherwise than a step in the right direction, and, if so, worthy of insertion in this periodical.

It should be observed however, that the adoption of such a plan would not be practicable unless upon a somewhat extensive scale—a parallelogram of 150 feet by 100 feet, for example, being the least space it should be attempted upon; whilst, on the other hand, the design could, of course, be executed upon the most extensive scale that local circumstances admitted of.

The situation of such a parterre, far from being obtrusive, it is intended should be somewhat secluded. Perhaps an appropriate site would best be obtained by clearing, well sub-draining, and reducing to an even surface, a suitable portion of some extensive shrubby scene, contiguous to some main walk or walks, whence the principal approach to it might be obtained, and not far remote from the mansion. The proximity of lofty timber or ornamental trees would, for obvious reasons, be objectionable; whereas the presence of a grown-up shrubbery, of American plants and common evergreens, would confer the requisite degree of seclusion, exhibit a suitable background mass, and afford considerable shelter—the latter being an especial desideratum in the culture of some of the most beautiful tender sorts of Roses; whilst harder kinds would also derive much benefit by being less exposed to the sweeping blasts we not unfrequently experience in spring and early summer.



Trellisage accompaniment, No. 1.

It is presumed that a judicious blending of grass and gravel, conjoined with the addition of a central basin of translucent water, containing gold fish and a few choice aquatics, and having a fountain, vase, or statue placed in the centre—the entire basin, with its concentric walk, being embowered with climbing Roses—the entire garden being surrounded with a light skeleton colonnade, also covered and festooned with climbing Roses, would produce a varied and highly pleasing effect in a garden of the kind.

The sketches 1 and 2, exhibit the trellisage accompaniments to the rosarium; and it will be obvious they present admirable sites for displaying climbing Roses in great variety. Rod iron would, of course, be the most appropriate material to employ in their erection, although wood is sometimes used. These trellisage accompaniments should not be less than 9 feet or 10 feet high, nor should the width of the outer colonnade be less than 7 feet or 8 feet.

liage accompaniments should not be less than 9 feet or 10 feet high, nor should the width of the outer colonnade be less than 7 feet or 8 feet.

The walk beneath may either be made of gravel, paved with wood or stone, or formed of asphalt, according to taste; doubtless gravel would present the best appearance, provided that of a good quality be obtainable in the locality.

In the sketch No. 1, it will be perceived that a frontage with open columns has been given to the colonnade on the inner or garden side, in order that the promenader, beneath a canopy of climbing Roses, may be enabled to look down upon the rosery beneath, arranged with standard and dwarf masses. Were the shrubbery in the background arranged with American plants and other choice evergreens for ornamental effect, there would be an obvious advantage attending the forming of both sides of the colonnade alike; but, if the reverse of such an arrangement be adopted—the background merely consisting of a thicket of common shrubs, &c.—the better plan would evidently be to close in the outer side of the promenade with a thick hedge of Laurel, Ivy, Box, Laurustinus, Holly, or Yew, amongst which Bengal and common China Roses might be introduced for enlivening the scene.

On the inner or garden side of the Rose-covered boundary walk, climbing sorts, suitable for producing what are termed "pillar Roses," might be introduced in conjunction with standards, and a vase or two for breaking the monotony of the long line of trellisage, &c. The sorts suitable for pillar Roses would be best disposed by planting them against the main supports or columns of the trelliswork, training a portion of their growth over the roof of the latter, whilst the remainder of their long flexible shoots would depend, and by a little management and attention form projecting "pillars" of luxuriant beauty.

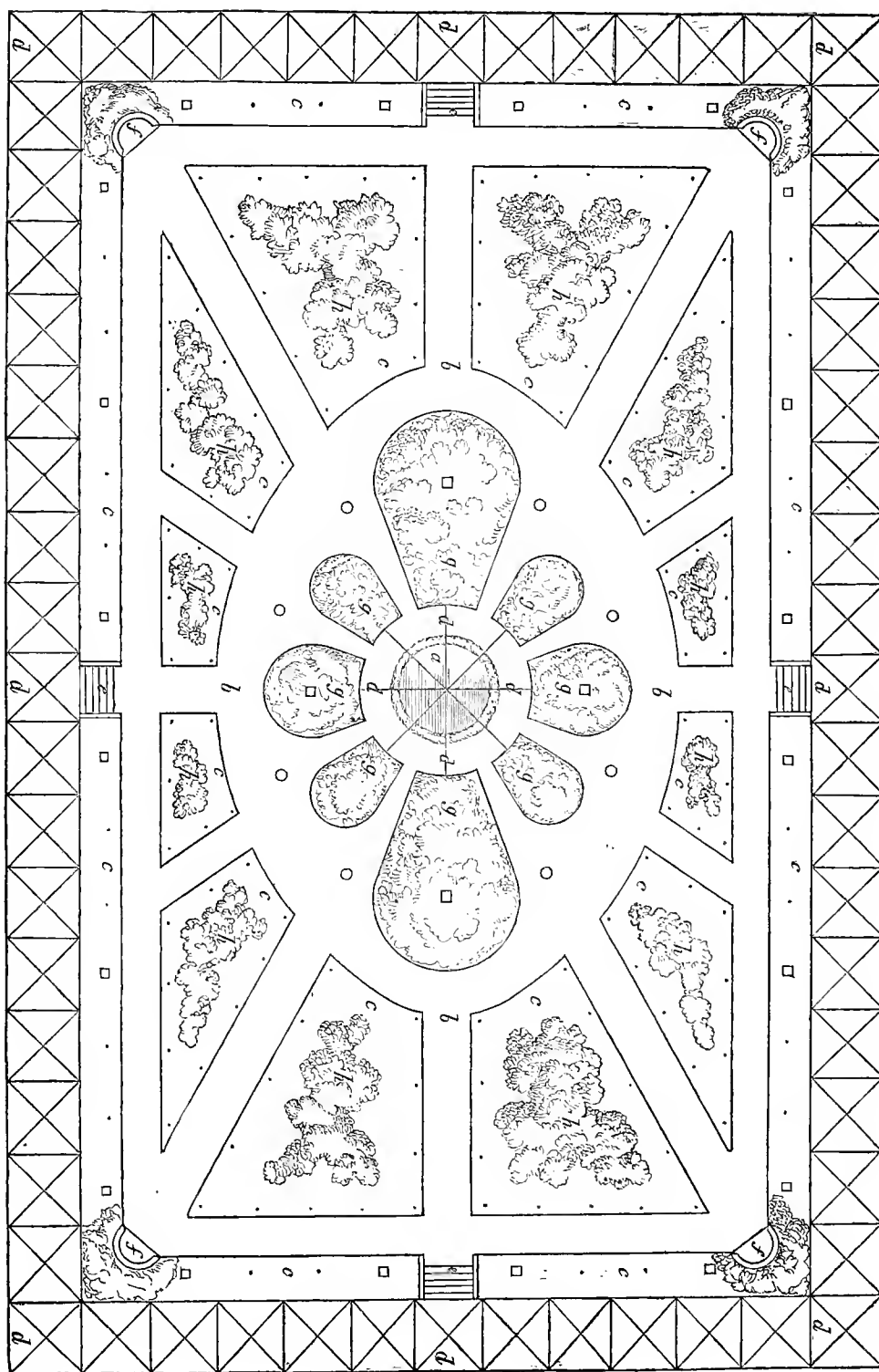
Steps are shown in the plan conducting from the garden to the trellised colonnade surrounding the former, and which it is intended should be elevated some 3 feet or 4 feet above the general level, and upon which, in the respective angles of the parallelogram, raised seats canopied with climbing Roses are also indicated.



Trellisage accompaniment, No. 2.

Situations for standard Roses, varying in height from 2 feet to 6 feet or more, and vases, are described on the plan by minute circles and dotted lines for the former, and by small squares for the latter. Miniature, Provence, or Pompon, with dwarf, Chinese, or "Fairy" Roses, would be the most suitable kinds for planting vases with; and if the bases or pedestals of the latter were planted with choice climbing kinds, the partial interspersions of these through the garden would, doubtless, be productive of the most unique result; and the same miniature tribes might appropriately be further employed in furnishing the small circles formed at the base of standards, as well as for describing compact zones of dwarf Roses to the margins of the larger and more varied groups on grass; for, in connection with grass, these attractive little Roses always look exceedingly well.

Finally, as regards the sorts best adapted for producing rich irregular masses on the grass portion of our plan. The selection and arrangement, in this instance also, must obviously be dependant on the taste of the proprietor; suffice it to premise here, that among the numberless varieties of what are termed "summer and autumnal" Roses, there need be no standing still for want of subjects. Doubtless, however, an arrangement for blending together a goodly number of the best sorts selected from each class of these principal divisions, if made judiciously and carried out tastefully in the grouping and disposition of them, would be the most pleasing, if not appropriate one that could be adopted. Similar observations to the foregoing must also apply to the choice and disposition of climbing, standard, and pillar Roses, indispensable to the creation and adornment of such a rosery as the preceding remarks have attempted to describe.



- a.*--Pond of water margined with dwarf, and embowered with climbing
Roses.
b.--Gravel walks.
c.--Grass.
d.--Colonnade festooned and embowered with climbing Roses.
e.--Flights of steps supported with vases.

- f.*--Raised seats embowered with Roses and supported with vases.
g.--Parterre on gravel arranged with masses of Tea-scented and Chinese
Roses.
h.--Irregular combinations of various "summer and autumnal" Roses.
i.--Vases filled with dwarf Roses.
o.--Standard Roses of different heights.

HEATING BY A HOT-WATER TANK.

Would you please to say to what heat a small greenhouse might be raised, 16 feet long by 8 feet broad, with a hot-water tank 11 feet long by 4 feet broad, 6 inches deep inside? The sides of tank $1\frac{1}{2}$ inch thick, to be of wood.—C. H.

[If you cover your tank with iron or slate, you may have almost any desirable heat for such a small house if the tank is exposed at the top, or if you take means to secure the heat from the tank getting into the house. What has been said to another correspondent in reference to walks applies to you. With a four-feet tank or platform in the centre, walks round it, and side shelves next the walks, the walks must be narrow in an eight-feet-wide house. The temperature raised in such a place would depend on the outside temperature and the fire used, or the heat of the water in the tank.]

RED SPIDER DESTROYED BY BITTER ALOES.

I FIND your correspondent "E. T." gives up the destruction of that plague, the red spider, in despair. Let him try the following. I do not myself place much faith in infallibility, still do think a fair trial will not leave him much cause to despond. It is equally effectual with aphides, mealy bugs, thrips, and scale. Dissolve half an ounce of socotrine aloes in one gallon of water. Syringe the plants with this solution so as to wet them under as well as over the leaves.—TYRO.

ENTOMOLOGICAL SOCIETY'S MEETING.

THE August Meeting of the Entomological Society was held on the 5th ult., the President, J. W. Douglas, Esq., being in the chair. It appears probable from what has transpired, that the reported removal of the Society to other quarters has been premature, and that arrangements are on foot for rendering the present meeting-rooms more convenient—a matter certainly necessary, as owing to the heat of the meeting-room it became necessary to admit a draught of cool air, over which there was so little control that some of the lights were blown out at one period of the evening. The Meeting was attended by Dr. Hagen, of Königsberg, General Sir J. B. Hearsey, J. C. Bowring, Esq., lately returned from China, Ceylon, &c.; by the last of whom a very interesting selection of Coleopterous insects collected in Penang were exhibited.

Mr. S. Stevens exhibited a splendid collection of Buprestidae recently received from Adelaide, South Australia, containing fifty-eight distinct species.

Dr. MacLellan exhibited, on behalf of Mr. Crewe, the larvæ of two species of Moths belonging to the genus *Eupithecia* (Pug Moths), and two of *Caradriana*.

The President exhibited a variety of insects of rarity and interest recently captured, including an apparently new species of *Spilonota*; *Scorpiotia fusca*, or new species; *Abdera 4-fasciata*; *Myrmedonia celestrata*, a curious little Hemipterous insect, of which the two sexes had been described as belonging to different genera; also the *Microphysa pselaphoides* of Westwood, taken by Dr. Bond in Ants' nests.

Mr. Stainton exhibited an apparently new species of *Nonagria* from the fens of Norfolk.

Dr. Knaggs also exhibited *Leucania Elymi*, a Moth hitherto only taken on the shores of the Baltic.

Mr. Faraday exhibited an interesting variety of the little blue Butterfly, *Polyommatus Alexis*, wanting the central spot in the middle of the fore wings on the under side.

Mr. Smith exhibited a specimen of a beautiful Shield Beetle from India, which had lived 116 days without food. The golden hue of the insect had during this period become somewhat tarnished. And Mr. F. Bond exhibited a small, new British Moth of the genus *Gelechia*.

Professor Westwood exhibited specimens of the larvæ of *Cestrus hominis* received from Count Ostensacken, Russian Minister at Washington (a nephew of the General of the same name of Crimean celebrity), which had been obtained from Honduras by Dr. Leconte, of Philadelphia. These larvæ differed considerably from those of other well-known species of Bot Flies, so that it appeared probable that there was really a species of the family which was attached as a parasite to the human race.

A letter was read from Lord Dunsany giving an account of the destruction of Ash plantations near Navan by the larvæ of a

large species of Cooper Moth; for more than half a mile the trees had been completely defoliated by these insects.

Dr. Knaggs exhibited specimens of his new British species, *Nonagria Bondii*, and also some beautiful reared specimens of *Acidalia strigilata*.

WORK FOR THE WEEK.

KITCHEN GARDEN.

FOLLOW up the plan of promptly clearing away the remains of crops as they successively decay. Those quarters which require trenching the ensuing autumn should be kept free after this time of the year of any further crop, that an opportunity may be afforded of getting the operation performed before the arrival of winter. *Broccoli*, where sufficient have not been planted, large plants may yet be put out with success. They should be laid in with a spade in a slanting direction. Earth up the advancing crops. *Cardoons*, earth up for blanching in dry weather. *Celery*, continue to earth up the early crops carefully, the tops of the plants to be perfectly dry at the time. The crops that are not yet earthed up to be kept very moist. *Cucumbers*, those in frames which it is intended to keep in bearing, to be covered up when the nights are cold; the beds should also be newly lined. *Endive*, continue to blanch and plant out from successional sowings. *Lettuce*, another sowing of the various sorts may be made; it is always better to have a superfluity in the spring than otherwise. *Mushroom-beds* may now be made either in sheds or in the open air. *Parsley*, thin the summer sowing while in a young state, the plants will then gain strength to stand the winter. A portion of the spring sowing to be cut down. *Tomatoes*, gather the fruit as it ripens, remove all the shoots that shade it, and also some of the leaves. A change has taken place in the weather since last week, frequent showers have greatly refreshed vegetation. Now is the time to be busy with the hoe in earthing up the various crops that require it, and also for planting out those that, from the dry state of the weather, could not be got out before. Prepare ground for spring Cabbage, and also for hand-glass Cauliflowers.

FLOWER GARDEN.

The work of mowing and general cleaning must be well followed up at this season. See to the security of stakes and fastenings generally. *Wistaria sinensis*, *Jasmines*, and the *Virginian Creepers* may be propagated by cuttings. *China Roses* and *Heartsease* may also be increased now. *Chrysanthemums* out of doors to be carefully staked, if against a wall where they look best they should be trained. Budded Rose-stocks to be carefully attended to, the buds that have started to be encouraged to make a more vigorous growth by stopping the wild branches of the stock.

FRUIT GARDEN.

Thin and dress Strawberry plantations, and be careful not to injure the leaves of the plants, and avoid deep digging between the rows, which is apt to injure the roots. Look frequently over the Pears that are ripening and gather those that are fit, for if allowed to hang after they are ripe the temtits or the wasps are sure to spoil them. Give a final nailing to the wall trees, that there may be nothing to obstruct the perfect maturation of the wood. Remove all useless shoots from the Vines out of doors, and lay in the branches close to the wall.

GREENHOUSE AND CONSERVATORY.

Give air freely on bright days, but if the conservatory contains many store plants it will be advisable to shut up rather early in the afternoon, so as to retain a little warmth for the night, and in the event of wet, cloudy weather setting in, it will, probably, be found necessary to use a little fire heat to dispel damp and to preserve the bloom of tender things. Keep everything as clean and neat as possible, removing decaying leaves, flowers, &c., immediately they are seen. Examine pot specimens occasionally, especially such as may not occupy the most suitable places, turning them partly round in order to expose all their sides equally to light and air. *Heliotropes*, *Verbenas*, *Scarlet Geraniums*, and *Roses* required for decorative purposes, to be progressively shifted, stopped, and trained, they will be found useful to a late period of the year. *Chrysanthemums*, *Cinerarias*, and *Chinese Primroses* are common plants, but will amply repay for the attention bestowed upon them. *Bulbs* will require early attention so that they may be allowed time to form an adequate portion of roots, that when wanted inherent vigour may assist

them to withstand premature excitement. Directly Japan Lilies, Gladioli, and plants of like habit have done blooming, remove them to the foot of a south wall to ripen their growth, water to be given moderately until the tops show signs of decay, when they may be laid on their sides till potting time. The earliest-struck *Pelargoniums* should now be potted off, exposing them on all occasions to the weather, except during heavy rains; the older plants first cut back which have made shoots an inch or two long, to be shaken out of their old soil, the roots trimmed and repotted in smaller pots. If they can be plunged in a slight bottom heat it will assist the roots to make a fresh start.

PITS AND FRAMES.

If previous directions had been attended to, the propagation of next season's stock will by this time be well advanced, and where from the engagement of other work or other causes this is not the case, every possible dispatch must be used while the weather is favourable for such work. W. KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN-GARDEN OPERATIONS.

THESE were much the same as the previous week. Shifted *Cucumber plants* from 48 into 24-sized pots, preparatory to their being planted out or grown in pots for winter, though we have not been so particular of late as respects winter Cucumbers, as few people here seemed to care about eating them from December to February; otherwise, with a close-walled pit, and no scarcity of stable-manure, or with a hot-water pit, there is no great difficulty in having them in good order all the winter, provided one thing is attended to—and that is, that the plants that bear profusely in November and December should not be expected to bear freely onwards to the spring. Plants to begin bearing about the new year and onwards should not be allowed to swell their fruit until the second week of December. For this winter work, unless the bed is very narrow—say from 18 inches to 30 inches, and from 15 inches to 20 inches deep, we prefer large pots well drained, and a good portion of the soil to be fibry heath mould. With such soil top dressings of richer material may be given, and manure waterings when required, with little risk of causing the soil to become sour or waterlogged. In winter worms seldom interfere with soil in which sweet heath soil forms a good part; whilst in richer loams they are apt to be troublesome, and lime water and other means cannot be so safely resorted to in dislodging them in winter as in summer. Well-dried, aired cowdung two years old is a good top-dressing for Cucumbers in winter. The next best is well-decayed, sweet leaf mould from two to three years old.

WASPS.

The wasps, contrary to our expectations, have been rather troublesome. They have seized upon Figs and some of the best Gooseberries that were not close enough covered, without any ceremony. Grapes have as yet remained untouched; but, to secure them, thin muslin has been tacked over all the air openings, so that not one wasp shall enter however resolved to do so, without cutting holes in the muslin. This they do not like doing in general; they would sooner cut an opening in a brick wall or deal board. We have had a strong nest in a chimney close to the ridge of a house, and where we dared not resort to other means than hot water, and filling every opening, however small, with cement and tar; but the little hardy things made holes again and again for themselves. I have noticed, however, that in going over and over on gauze and finding no opening they generally give it up as a bad job; and rough wadding is so much an aversion that they seem glad to escape from it. We have been forced to cover Peaches and Nectarines getting ripe with little bits of thin gauze twisted tightly round them: this permits plenty of air and light to enter, and yet keeps the wasps out. If the gauze does not go close to the stem of the fruit, a little wadding stuck on there with the woolly side out will keep wasps and flies at a distance. Some hand-lights fixed, as mentioned the other week, and set beside a piece of Gooseberries and Currants, netted and covered, have each more than a peck of wasps and great flies. I fear in such cases we are apt to look less on the benevolent part of the question than we ought to do.

FRUIT.

Removed laterals from Vines to a great extent in the late viney. Removed or shortened laterals on fruit trees—such as

Peaches, Nectarines, and Apricots, also Apples and Pears, in order that the wood left might have more chance in perfecting itself thoroughly, the growing now being made secondary to the ripening process. Watered fruit trees transplanted in spring, the sun being extra powerful. Cleared off all weeds from the Strawberry-beds, and would have had all runners cleared off if I could have found the time.

Watered *Strawberries* in pots, giving them manure water almost at every time, as there is little sign of the plants being too strong this season. In taking off the runners from the main plantation, besides laying in a number thickly, we shall prick out a good many about 6 inches apart in rich soil, and these if needs be we can raise with balls, and force after March and April. For all early forcing in winter and spring we consider it absolutely essential that the pots should be full of roots, and the buds well ripened before the end of autumn, and then that the plants should have two or three months' rest before being excited into growth.

This is a good time to make fresh plantations of *Strawberries* in the open air. A rather stiffish loam grows them best. They go too much to leaf in light sandy soils. In loamy soil our practice is to trench two spits deep, and to stir with a pick the bottom of the trench. Before trenching we place 2 inches or 3 inches of hotbed manure on the surface of the ground, and that chiefly goes into the lower trench. When done, we spread 3 inches or so of such manure on the surface and fork it in, and, when convenient, plant in rows 2 feet apart, and 15 inches in the rows. In light soil we give more room, and consolidate the soil by trampling and rolling before planting. In either case, though we mulch and stir the surface, we never allow a spade to go near them again until we dig them down to make way for succession crops.

As it is a matter of dispute and also of science in contrast with so-called ignorant vandalism, we give our opinion on the practice of cutting over the heads, or leaves, of *Strawberry plants* shortly after they have done bearing, or at the usual time when the beds are cleaned. Now, our opinion from experience is shortly this—but we wish no one to adopt it before convinced thoroughly—that in all loamy stiffish soils the cutting off the leaves of *Strawberry plants* is worse than vandalism. We remove the runners, we even thin the stools of old beds and rows by removing the pieces with the smaller buds, and plants so treated will bear well many years. But we do not like to remove a leaf from the part of the plant left, and we feel sure that when these leaves get brown and decay the bud is ripe for next year's work, whilst the decaying leaves form a defence to the bud in the following winter. In very light sandy soil, with all our treading and rolling, the plants will incline to grow too much to top, and that will decay much sooner than on stiffish soil. In that case we would not hesitate to clear all the leaves away as soon as they began to turn brown, and then fresh leaves would be formed, and in time to perfect a fresh set of buds close to the ground. If we have expressed ourselves so as to be understood, our readers will perceive that the practice that might be Goth-and-Vandal-like under one circumstance, may be not out of place in another set of circumstances.

PLANT-HOUSES.

Pruned back *Pelargonium* plants in pots, the shoots being as firm as Oak shoots; the poor things resemble now, in miniature, as many stag-horns. The ground was watered on which the pots stand, and a slight sprinkling was given to the tops to cause the buds to swell; but that will come time enough, as the less the leaves are in winter the more easily are they kept in winter, and the better will they bloom in spring and summer. Put some of the cuttings in pots, and others in borders to give away or exchange. Changed and reset plant-houses, giving plenty of manure water to Balsams and other annuals; and plenty of sun, and yet protection from heavy rains, to hard-wooded plants. Gave also manure waterings to *Chrysanthemums* in pots. Now is a good time to layer some of those out of doors in small pots; for having dwarf plants in bloom for vases, &c., no better plan can be adopted than, after getting the shoot to the pot, running a knife for an inch or so up its middle, placing in the opening a bit of wood or stone, and covering all in the earth of the pot; as the roots form, cut the stem at first half-way through behind, and, in a week or two, cut the connection altogether.

FLOWER GARDEN.

In our exposed place the hot dry weather has been trying to

Calceolarias-beds, but the very thing for Geraniums, which are now blooming nicely. I raised a lament lately about beds of Coreopsis refusing to open their buds. Some beds for a fortnight have been very fine, consisting of *tinctoria, atro-sanguinea, marmorata*, and others, in one mixture. I believe some thousands will order their threepennyworth of seed next season to try and beat me. I like them all the better because the humblest and poorest can have them. We have been obliged to water Calceolarias and Dahlias several times, and hope the weather will be a little more cool and moist now that the most of the harvest has been got in; and a little moisture would be the thing for Turnips. Lawns have required less attention; a slight skiff with the scythe when at all long, a whip with the double-edged knife, a slight clip with the mowing machine, set high so as not to dip too low, and cause it to look brown; and a whisk over with a light-hand wooden-roller, to make it smooth, are about all that were needed to make it smooth and comfortable. A few brownish spots are, nevertheless, appearing, and I should soon increase them if I allowed either scythe or mowing machine to go down deep in such weather; as watering is quite out of the question, as we can hardly obtain enough for pot plants.

Walks, though unrolled for a month, are in capital order; but are showing signs of crucking at the sides, and a few small weeds are appearing in places close to the sides. To remedy all this, a little salt was thrown along the sides for about 6 inches in width which will keep it more moist there, will destroy the small, almost imperceptible weeds, and will prevent the worms raising their little heaps to mar the regular level outline. At this season I do not mind thus treating the sides of a walk; but I would not, on any account, throw salt over the walk as a whole, if I expected to walk on it in winter at all comfortably.—R. F.

TRADE LISTS RECEIVED.

List of Bulbs and other Flower Roots, &c. By E. G. Henderson & Son, Nurserymen, &c., Wellington Road, St. John's Wood.—A copious catalogue not only of bulbs, but of many other tribes of flowering and ornamental plants. It contains also an account of novelties to be sent out in October, and a drawing of one, the ornamental-fruited *Epicynium leucobotrys*.

Autumn Supplement to the Gardeners' and Farmers' Vade Mecum. By J. Carter & Co., High Holborn, London.—This excellent supplement is itself a catalogue. Besides lists of the best varieties of bulbs, it points out the soils and culture they require; gives groups of those best suited for exhibition, outdoor cultivation, and forcing; lists of Ferns, and drawings of hanging-baskets, which Messrs. Carter sell ready stocked with growing Ferns; besides much other useful information which we cannot afford space to particularise.

Autumn Catalogue of a Choice Collection of Dutch and Cape Flowering Bulbs. By Butler and McCulloch, Covent Garden.—This is also a copious catalogue, and contains a great deal of useful information on the subject of bulbs.

Autumn Catalogue of Dutch, Cape, and other Flowering Bulbs. By Hooper & Co., Covent Garden.—Is an excellent catalogue, and embraces all that are worthy of cultivation.

Catalogue of Dutch Flower Roots, &c. E. Taylor Nurseryman, &c., Malton, Yorkshire.—It contains very select lists, and includes similar brief selections of Pelargoniums, Petunias, and other florists' flowers.

Catalogue of Fresh-imported Bulbous Flower Roots. Sutton and Sons, Reading.—A very good selection, with some notes upon the culture of some of the genera.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications.

We cannot reply privately to any communication unless under very special circumstances.

SPARROWS (A. W.).—The paper your refer to was translated and published in the *Times*. We purpose to republish it. You will see some notes on the subject in our columns to-day.

BLOTCHED ROSE LEAVES (Old Subscriber).—These brown blotches arise from a defective supply of sap. If the soil was richly manured annually, and well watered and mulched during the summer, probably the blotches would not appear. Certainly not if the Roses were growing on their own roots and were so treated.

FIG TREES KILLED BY FROST (Subscriber, North Wales).—As they are throwing up vigorous shoots from the old stools, certainly prefer these to planting young trees in their place.

FRAMES (Goth).—Mr. Joseph Smith, Pine Cottage, New Road, Hammer-smith, W., can give you the information you require.

EARWIGS (R. L., &c.).—The only certain mode of destroying earwigs is by catching them. This can be effected by hollow tubes laid here and there. The common reed is fit for this purpose, but the hollow stem of the Sunflower and Jerusalem Artichoke are even more so, as the insects are eager in the pursuit of the remains of the sweet pith. They are also easily caught between the folds of paper, or in pieces of cloth and linen laid on the ground. They creep into these traps in the morning after their nocturnal rambles, and may easily be shaken out and killed at any time of the day. Some amateurs of Pinks and Carnations place the feet of their flower-stands in vessels of water, which prevents the earwigs from creeping, but not from flying, upon the plants, for the earwig has wings. Small flower-pots with a little moss in them are placed on the top of Dahlia stakes as traps, but a more slightly trap is figured and described in the "Gardeners' Magazine," xv., 190.

HEATING A SMALL GREENHOUSE—SWEET-SCENTED ROSES IN POTS—PARSLEY IN WINTER (Jane).—The small iron stove with the funnel through the roof, and a flat head so as to hold a vessel of water would suit you best, or a small brick stove within 18 inches of the back wall. Of Roses, you might have Madam Hardy as a Damask, Blairii, Général Jacqueminot, Madame Plantier, Paul Pernet, Paul Ricant, William Jesse, among Noisettes and Bourbons; and among Hybrid Perpetuals, Arthur de Sansal, Baronne Prevost, Caroline de Sansal, Jules Margottin, Louis Peronny, Madam Rivers, Souvenir de Leveson Gower, and William Griffith. To have a good supply of Parsley in winter, sow in April, and cut down within 2 inches of the soil at the end of July. Either sow where it can be protected, or rather transplant in July where it can receive protection. We think any person that advertises in our columns could supply you true, and we feel confident that any respectable nurseryman on your side of the water would do the same, if you clearly stated what you wished, and that you would have none other sorts.

CARNATION (Seedling).—The Carnation from Glasgow was in such a shrivelled condition that it was impossible to decide on its merits. Send it in a box with a little damp moss, and we can then, probably, say whether it is worth growing.

SOWING LOBELIA SPECIOSA (W. H. F., Subscriber).—The best, and indeed the only time for sowing *Lobelia speciosa*, is the end of March or early in April.

ARBOR (C. Cotton).—Not knowing whether you intend to use a trellis and not knowing either the size you wish for nor the exact object you have in view, we cannot advise. Evergreens are the best for every kind of arbour.

PINK GERANIUMS (P. M. J.).—The leaf and truss you enclosed are far from being like those of Christina. There is no Geranium yet of the same form and habit—bad habit, by the way—as those of Countess of Bective, not Lady Bective, and the flowers of Christine, and never shall be, that you may rely upon. We do not happen to know Lady Ellesmere Verbena. The kind inquired after is probably Lady Middleton, a light lavender, sweet-scented, very strong-growing Verbena, which was advertised erroneously as of mauve colour. A "small dark purple Petunia the size of Shrubland Rose," is no criterion to judge what flower the lady wants; any of the sixpenny packets of seeds would be sure to produce such a Petunia. Among all the Geraniums there is not yet one single kind with a pink flower, for bedding, save the dwarf pink Ivy-leaf called *Laternes rosea* by Sweet; that race ran on from Rosy Morn to Cherry Cheek—all rose, or all cerise, or a mixture of the two. A good pink bedding Geranium is the greatest want in our day. Lilac and mauve Geraniums are also much wanted by such ladies as wrote that note which you enclosed. Where the soil suits the very dwarf pure pink Ivy-leaf Geranium there is not a prettier pink plant for beds. There is a true pink Geranium exactly like that pink in the said Ivy-leaf Geranium coming out next year, but it is as strong as Christina, or a little stronger, but no one knows yet if all kinds of soil will suit it. You heard that Baron Hugel, the freest bloomer of all the Geraniums, does no good in the splendid new Garden at South Kensington; and another Baron, called Baron Rascoli, is being now prepared to replace Baron Hugel there and probably in all other places.

NAME OF FERN (Mrs. N. C.).—It is not a Fern, but one of the Fern allies, *Lycopodium denticulatum*.

MUSCAT HAMBURGH GRAPE (E. C.).—You are no worse off than other cultivators of this Grape; under any mode of culture it is liable to fall both in setting and in swelling off its berries. If you remove it, plant in its place a Buckland Sweetwater.

FLOWER SHOWS FOR 1861.

SEPTEMBER 11th. ROYAL HORTICULTURAL SOCIETY. (Dahlias and other CHL Flowers.) *Garden Superintendent*, G. Eyles.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.

Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.)

Sec., W. Houghton.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

MORTALITY AT THE SHEFFIELD POULTRY SHOW.

IN reply to your letter I beg to say that the symptoms my birds exhibited when they returned from Sheffield were extreme thirst, an aversion to all kinds of food, and a most dull and melancholy appearance. They all huddled into a corner and there they lay; their combs were of a deep purple, almost black, and the cockerel was much purged. Two of them died on the Saturday after their return, and the third lingered on till Monday morning, the 12th; they were opened in my absence, and I was told by my poultry woman that the whole of the insides were much inflamed. I thought of sending them to an analytical chemist, but was advised not to do so as the expense would be very great.

I see a letter from "SELIM," but he does not throw much light on the matter.

Last year a cockerel exhibited by me at Sheffield died soon after his return to me; but at the time I attributed his death to his having been allowed to eat too much when first taken out of his hamper.

My case seems different from any yet mentioned, as I suppose my birds were not dosed until after the awards of the Judge.—JOHN F. NEWTON, *Vicarage, Kirby-in-Cleveland, Yorkshire.*

[All the symptoms exhibited by the Rev. Mr. Newton's poultry are indicative of death by an irritant poison—probably arsenic; and we regret exceedingly that he did not apply to the Sheffield Committee to have the contents of the birds' crops and intestines analysed. Even now it is not too late; for if poison were the cause of the deaths, and the poison were of metallic origin, it would yet be detectable.]

We observe that "SELIM," in our contemporary, states that at the Sheffield Poultry Show, for 1860, two of his birds died, that they were dosed, and that he warned the Committee to have a detective this year. He concludes by saying, "From the fact of so many birds being found ill before the awards were given, it appears evident that some parties must have obtained admission previously, and effected their object."]

I PERCEIVE by a letter in your contemporary the *Field* that "SELIM" politely declines to avow his individuality, contenting himself by pretty closely recapitulating his first statement referring to the precautions he himself deemed essential to the preservation from injury of the poultry at the late Sheffield Exhibition, adding, most properly, it was his sole desire to put the Committee on their guard, and thus prevent disaster. So far so good. Nor do I personally intend to entertain the now-so-generally vexed question as to the "right" of the Sheffield Committee to know personally the individual to whom they are indebted. Again, had it been possible for me now to have addressed a private letter to that gentleman, I should have greatly preferred so doing to adopting the only course yet available to me; for who "SELIM" may be I cannot even conjecture. I must not, however, forbear the expression of my own individual opinion—in which I find nearly every poultry amateur fully concurs—that all good results he thus desired would have been as effectively attained by the transmission in the first instance of a private, though necessarily emphatic letter, addressed exclusively to the Sheffield Committee, explanatory of "SELIM's" apprehensions, rather than by the adopting of the less desirable and ill-judged step of thus making it a matter of universal publicity, tending, as it inevitably must do, more to the severance of good feeling among poultry amateurs than their benefit. I repeat my conviction—every good issue that could possibly ensue would have been thus easily gained; whilst on the other hand, the public distrust, unfortunately created by his first printed letter, would as undoubtedly have been obviated *in toto*—EDWARD HEWITT, *Eden Cottage, Sparkbrook, Birmingham, Sept. 5, 1861.*

HALIFAX FANCY PIGEON ASSOCIATION.—The fourth annual Show of this Association will take place on the 20th and 21st of December next, and from the number of extra prizes promised, no doubt it will be as successful as its predecessors. The schedule will be out in the course of a fortnight.

CHESTER POULTRY EXHIBITION.

THE competition throughout among the exhibitors of poultry at Chester was very good; so much so, that although the entries comprised only about eighty pens, so interesting and perfect a collection is rarely met with at even our largest meetings. This Show, though essentially an agricultural meeting, has invariably stood in good position as to poultry; and, on the present occasion the premiums offered for this description of stock, and sheep likewise, were raised exclusively by local subscription. We are glad to see that this county, always renowned for the excellency of its poultry, thus maintains its interest by progressing equally with the districts immediately adjacent.

Our review of the classes was considerably improved by the excellency of the general arrangements. Chester was the first Show that employed the folding wirework pens, now so general, and which were originally suggested by that well-known poultry amateur, Mr. Edward Hewitt, of Birmingham. For utility as to general exhibition purposes, combined with requiring the least possible space when travelling, or laid by until again wanted, there seems no room for improvement; but the "bolting-wire door," now used, is undoubtedly a great progressive step to the one first applied, which then fastened similarly to the door of a Parrot's cage. One of the very great advantages of the "bolting-wire" is this, that whilst requiring no fastenings whatever, it does not in the slightest degree compromise the safety of the inmates from their own exertions to escape, and visitors should, at every exhibition, be prevented from interfering with or handling the poultry, by properly appointed officials: still, the arbitrators possess the undeniable advantage of the readiest access possible to any specimen they wish to handle. For Game cocks particularly, the half-raised door offers a complete safeguard to the hand whilst taking them from the pen for this always-necessary investigation.

Spanish fowls headed the list. The first pen was undoubtedly a good one, and being entered at the low price of £5, would most probably change ownership. In the Spanish chickens, the well-known birds of Mr. Redbard, of Bristol, not only richly deserved their first premium, but most singularly attained it without any competition whatever. The old *Dorkings* were, indeed, a bad-looking lot; but the Dorking chickens were decidedly one of the best classes we have met with this season. It will be seen by reference to our appended prize-list that Mr. Stretch, of Bootle, obtained a very easy mastery in the adult Buff *Cochins*; but in Partridge-coloured ones, the precedence was enjoyed by Mr. Cartwright, of Oswestry, with an excellent pen. It occurred to visitors that the pen of Mr. Stretch being so sadly out of feather would have been more wisely managed had they not just now have been exhibited. The *Cochin* chickens of any variety of colour were marvels. Mr. Edward Tudman, of Whitechurch, stood first with one of the best Partridge-coloured pens we ever saw, and the Bufts and Whites were but little less worthy of mention. The *Hamburghs* and the *Game* fowls showed to disadvantage. The *Bantams* of every variety save *Sebrights* (not a single specimen of which competed) were first-rate. We noticed several lots of Brown Reds that were peculiarly well bred for colour.

The *Aylesbury Ducks* left a favourable impression on all parties; but the *Rouens* were indifferent, so much so that in this last-named variety the only poultry prize withheld occurred.

The weather being very favourable, an extensive and fashionable attendance took place.

SPANISH.—First, J. Bamber, Broughton. Second, J. Grocott, Nantwich. *Chickens*.—First, J. R. Redbard, Aldwink Court, Warrington, near Bristol. Second, no competition.

DORKINGS.—First, A. Potts, Hoole Hall, Chester. Second, T. Burgess, jun., Burydam, Whitechurch, Salop. *Chickens*.—First, A. Potts, Hoole Hall, Chester. Second, Lady Bagot, Blithfield Hall, Rugeley, Staffordshire. Highly Commended, Lady Bagot; Mrs. E. Tudman, Ash Grove, Whitechurch, Salop. Commended, T. Burgess, jun.

COCHIN-CHINA (Cinnamon or Buff).—First, T. Stretch Marsh Lane, Bootle, Liverpool. Second, G. Fell, Warrington.

COCHIN-CHINA (any other variety).—First, P. Cartwright, Oswestry. Second, T. Stretch, Marsh Lane, Bootle, Liverpool. *Chickens*.—First, E. Tudman, Ash Grove, Whitechurch, Salop. Second, J. B. Walthew, Birch's Brow, Aughton, near Ormskirk. Highly Commended, G. Williamson, Welch Row, Nantwich; P. Cartwright; T. Stretch; G. Fell, Warrington; E. Tudman; J. B. Walthew, Birch's Brow, Aughton, Ormskirk. Commended, H. Ba'es, Harbourne Heath Cottage, Edgaston, Birmingham.

HAMBOURGH (Golden-spangled).—First, G. Fell, Warrington. Second, no competition.

HAMBOURGH (Silver-spangled).—First, T. Dale, Middlewich. Second, T. Rigby, Fenny Wood, Winsford.

HAMBOURGH (Golden-pencilled).—First, W. Pierce, Hartford, Northwich.

HAMBOURGH (Silver-pencilled).—No entry. *Chickens*.—First, W. Pierce, Hartford, Northwich. Second, R. Roberts, Clifton, Preston, Lancashire.

GAME (any variety).—First, J. Grocott, Nantwich. Second, W. Sheffield, Boston. *Chickens*.—First, A. Phillips, Gravel Lane, Winsford. Second, C. Lewis, Old King's Head, Bridge Street, Chester. Highly Commended, T. Burgess, jun., Burleydam, Whitechurch, Salop. Commended, H. Child, jun., Sherborne Road, Birmingham.

PANTAMS (any variety).—First, T. Burgess, jun., Burleydam, Whitechurch, Salop. Second, J. Grocott, Nantwich. Highly Commended, C. W. Hull, Foulton-le-Fyde, Lancashire.

Ducks (Aylesbury).—First, T. Johnson, Over, near Winsford, Cheshire. Second, E. Shaw, Plas Wilmot, Oswestry. Highly Commended, J. Grocott, Nantwich; T. Rigby, Fenny Wood, Winsford. Commended, T. Rigby.

Ducks (Rouen).—First, T. Burgess, jun., Burleydam, Whitechurch, Salop. Second, withell.

The Judge was Mr. Edward Hewitt, of Eden Cottage, Sparkbrook, near Birmingham.

POULTRY EXHIBITION AT KEIGHLEY, YORKSHIRE.

It must indeed be most satisfactory to the Committee of the Keighley Show to find so full success attending their annual meetings; and, undoubtedly, if untiring efforts to cater for the public gratification are worthy of such an issue, none can more richly deserve it than they do. It is now nineteen years since it was first instituted as an agricultural meeting, and it still holds a prominent position among the inhabitants of the district for many miles round; whilst other societies of similar character having at the onset equal advantages have fallen into disuse, entirely through the want of energy on the part of their respective officials. Not so, however, with the Keighley Committee. They "progress with the times;" some new feature is annually introduced, and, consequently, their Show has become as popular, if not more popular, than any other exhibition of like nature in Yorkshire. On the evening of the 3rd inst., any individual passing through Keighley must have been surprised at the preparations that were then fast progressing, and which were carried on without the slightest intermission the whole night through. Festoons of flowers, both natural and artificial, combined with gigantic wreaths of evergreens, waved across the streets from most of the windows; holiday folk wandered about in one continued stream on all sides, to whom the varied inscriptions on the numerous banners appeared one of the principal points of attraction.

In front of the road leading to the railway station, we noticed a very large decoration, bearing the appropriate announcement, "Welcome Visitors all." A little farther on was an equally large one, surmounted by a cornucopia, inscribed "1861;" the hand of Providence pointing to the year's date, and beneath it—

"The poor shall be fed
With plenty of bread."

Still onwards, but quite opposed to the general route to the show-field, the loud laughter of an assembled crowd of idlers caught our ears; and, on arriving on the spot we found a publican, who, no doubt, felt a great interest in the Show, but still a little for self, had adopted the following novel means of attracting customers. By the sides of the chimneys of his own dwelling, and also attached to those of his neighbours, were effigies of life size of a sailor, a soldier, an artilleryman, a rifle volunteer, a Punch, and a Blondin; nor was the chief present foible of the female portion of society overlooked—a crinoline! certainly the largest of the many extravagant-sized ones that have yet met our eye dangled midway across the highway, the materials of which it was composed abounding in all the gorgeous colours that the most unfettered imagination could devise. Strange idea! underneath its ample space, some 15 feet in diameter, were suspended a leg of mutton, a ham, a reeve of onions, a bee's tongue, and an immense variety of similar edibles. A Yorkshire wag in our rear (confound the fellow), said "it was only suggestive of the business that might be done with crinoline when out shopping." Good thing he escaped the ducking-pond!

But to the poultry. We were quite disappointed with the adult *Cochins*, they being naturally in heavy moult; but the chickens were excellent in every point. The *Spanish* mustered rather strongly and were good; but we were annoyed to see decidedly the best pen on the ground "disqualified," from being entered in the wrong class. This result is compulsory, and exhibitors cannot be too particular on this head. The *Hamburgh* classes, as might naturally be supposed, stood *Al*. It is really surprising how perfect in plumage was nearly every pen exhibited; but the great failing—discoloured ear-lobes, seemed somewhat overlooked by these candidates for public

distinction. In *Polands*, it is but rarely we see a better collection; whilst all the chicken classes were unexceptionable.

The *Geese* and *Turkeys* would have stood well at any exhibition, and the *Ducks* were no less creditable.

The *Pigeons* were quite a show in themselves, and certainly attracted no small proportion of public attention. The *Tob* *Pigeons* were particularly praiseworthy. Although the weather at early dawn looked worse than suspicious, the day as time wore on proved favourable, and, consequently, the attendance was quite as great as even the most sanguine could desire.

COCHIN-CHINA (any colour).—First, W. Dawson, Mirfield. Second, R. Dewes, Knaresborough. *Chickens*.—First, W. Shepton, Earby. Second, J. J. Thomas, Garstang. Commended, W. Dawson, Mirfield.

SPANISH (Black).—First, J. Dixon, Bradford. Second, D. Wilson, Sutton. *Chickens*.—First, J. Senior, Batley Carr. Second, E. Brown, Sheffield. Highly Commended, J. Dixon, Bradford.

CHITTEPEATS.—First, Emily Beldon, Bradford. Second, S. Shaw, Stainland. Commended, J. Hoyle, Haycock. *Chickens*.—First, J. Dixon, Bradford. Second, J. Shaktleton. Highly Commended, Emily Beldon. Commended, J. Sunderland, Faceroff; W. Ayrton, Earby.

GOLDEN PHEASANT.—First, Emily Beldon, Bradford. Second, J. Dixon, Bradford. *Chickens*.—First, W. Lawson, East Chirvin, Otley. Second, J. Dixon, Bradford. Commended, E. Harrison, Keighley; Emily Beldon; J. Newton, Silsden.

HAMBURGH (Golden-pencilled).—First, F. Hardy, Bradford. Second, J. Dixon, Bradford. Commended, S. Smith, Northowram. *Chickens*.—First, J. Firth, Halifax. Second, S. Shaw, Stainland. Highly Commended, J. Dixon, Bradford.

SILVER PHEASANT.—First, H. Carter, Upper Thorg. Second, J. Hartley, Keighley. *Chickens*.—First, J. Dixon, Bradford. Second, S. Shaw, Stainland. Highly Commended, J. Hartley, Long Lee; E. Hattersley, Keighley; G. West, Bingley. Commended, Emily Beldon, Bradford.

BLACK PHEASANT.—First, S. Shaw, Stainland. Second, W. Maud, Bingley. *Chickens*.—First, S. Shaw. Second, J. Scott, Skipton.

POULAN (Golden or Silver Pheasant).—First and Second, J. Dixon, Bradford. *Chickens*.—First, J. Dixon. Second, J. Broughton, Calverskye Hill. Highly Commended, J. Rawnsley, Gilstead. Commended, J. Dixon.

DORKING.—First, J. T. C. Lister, Bamsley Hall. Second, J. Dixon, Bradford. *Chickens*.—First, T. E. Kell, Wetherby. Second, T. B. Stead, Leeds.

GAME (Red).—First, R. Tate, Driffield. Second, R. Hemingway, Shelf. *Chickens*.—First, J. Hodgson, Bradford. Second, R. Hemingway. Highly Commended, W. Bentley, Low Moor; G. Longbottom, Halifax. Commended, T. Carr, Reed Maker; T. B. Stead, Leeds; M. Broadley, Wakefield.

GAME (any other variety).—First, F. Hardy, Bradford. Second, R. Turner, Drighlington. *Chickens*.—First, M. Broadley, Thorne's Lane. Second, F. Hardy, Bradford. Commended, J. Sharp, Heaton; R. Hemingway, Shelf; R. Tate, Driffield.

PANTAM (Black, White, or Game).—First, E. Hutton, Pudsey. Second, J. Dixon, Bradford. *Chickens*.—First, S. Oxley, Heckmondwike. Second, R. Vonkes, Driffield. Commended, M. Broadley, Wakefield.

ANY DISTINCT BREED.—First, J. Dixon, Bradford (Black *Polands*). Second, W. Dawson, Mirfield (Sultans). Commended, J. Dixon; R. Tate, Driffield. *Chickens*.—First, J. Smith, Utley (Black *Polands*). Second, G. West, Bingley (Black *Polands*). Highly Commended, H. Cato, Keighley (White *Dorkings*). Commended, J. Dixon (Malays); E. Hattersley (White *Polands*).

DUCKS (Rouen).—First, W. Mitchell, Keighley. Second, J. Dixon, Bradford. Highly Commended, R. J. Robinson, Ulverston; H. Cockshott, Bingley.

DUCKS (Aylesbury).—First, J. Dixon, Bradford. Second, J. Ramsden, Bradley. Highly Commended, R. Tate, Driffield. *Ducklings*.—First, R. Tate (Aylesbury). Second, R. J. Robinson, Ulverston (Rouen). Highly Commended, J. Dixon (Buenos Ayren). Commended, S. Shaw, Stainland (Rouen).

GEES.—First, R. Tate, Driffield. Second, B. Baxter, Elslack Hall. Highly Commended, E. Hutton, Pudsey.

TURKEYS.—First, R. Tate, Driffield. Second, J. Dixon, Bradford.

BEST THREE PENS OF POULTRY (Chittipeat, Silver Pheasant, and Golden Pheasant).—Silver Cup, J. Dixon, Bradford.

PIGEONS.

POWTER OR CROPPER.—*Cock*.—First, J. Sunderland, Coley Hall. Second, S. Shaw, Stainland. *Hen*.—First, H. Smith, Skipton. Second, S. Shaw. Highly Commended, J. Sunderland.

CARRILE.—*Cock*.—First, E. Moorehouse, Halifax. Second, H. Smith, Skipton. Highly Commended, H. Smith. *Hen*.—First, E. Moorehouse. Second, H. Smith.

TUMBLERS (Almond).—Prize, S. Shaw, Stainland.

TUMBLERS (Balds, Beards, or Mottled).—First, S. Shaw, Stainland. Second, J. Anderton, Glusburn. Highly Commended, S. Shaw. Commended, C. Sidgwick, Riddleiden; E. Moorehouse, Halifax.

OWLS.—First, S. Shaw, Stainland. Second, J. Raunsley, Gilstead.

TURBITS.—First, S. Shaw, Stainland. Second, J. Raunsley, Gilstead.

JACOBS.—First, S. Shaw, Stainland. Second, A. Laycock, Woodville.

FAN-TAILS.—First, J. Raunsley, Gilstead. Second, S. Shaw, Stainland.

BARBS.—First, S. Shaw, Stainland. Second, E. Moorehouse, Halifax.

DRAGONS.—First, E. Moorehouse, Halifax. Second, S. Shaw, Stainland.

TRUMPETERS.—First and Second, S. Shaw, Stainland.

MAGPIES.—First, S. Shaw, Stainland. Second, A. Laycock, Woodville.

ANCHANGELS.—First, A. Laycock, Woodville. Second, E. Moorehouse, Halifax.

ANY DISTINCT BREED.—First and Second, S. Shaw, Stainland. Highly Commended, J. Sunderland, Coley Hall; S. Enley, Heckmondwike.

The Judges were Edward Bond, Esq., of Headingley, near Leeds; and Edward Hewitt, Esq., of Sparkbrook, Birmingham.

WORMS IN THE EYES OF GEES.—"SIR,—The most singular thing I ever heard of has happened to our Geese this year. They

are all going blind and pining away. I had one of them killed, and when we opened the eyeball a small black worm, just like a young leech, came out. It was very lively, and when it was put into water it swam about exactly as a leech does. I sent the insect alive in a bottle of water to Dublin, to Mr. Small, of Aungier Street, who is our veterinary surgeon. He has ordered us to cut open the eyeballs of those affected, with a lancet or sharp penknife. If any of your numerous readers have ever been troubled in this way with their poultry would state what it will be best to do to prevent or cure the complaint, it would confer a favour on—Yours, &c., J. McKEOWN, Land Steward to Sir John Maeneil, Milltown Grange, Castlebellingham, August 24, 1861.—(*Irish Farmer's Gazette*.)

CRYSTAL PALACE POULTRY SHOW.

(From another Reporter.)

THE Exhibition of poultry just closed has certainly been the best summer show of chickens ever yet held by the Crystal Palace Company, and these gentlemen well deserve so successful a result; for not only were the premiums offered of an unusually liberal character, but the arrangements throughout on this occasion were so excellent and efficiently carried through as to leave no cause for even a solitary grumbler. It is certain so well-devised and thoroughly-fulfilled rules must have a permanent effect on all future meetings; whilst it is the just due of Mr. Houghton, the never-tiring Secretary, to say that this extraordinary improvement in the management is solely attributable to his personal exertion and superintendence. Even were a pre-disposed fault-finder to have narrowly criticised the whole management, the only suggestion he could possibly have thrown out, would have been an exchange of position between the classes for Ducks and Rabbits, although, probably, some private reason existed for the plan adopted not so directly apparent to a casual visitor.

The *Spanish* classes were perfect, scarcely a single pen could have been pointed out that some few years back would not have been deemed faultless. The yard of Mr. J. R. Rodbard shone most brightly in the prize-list. Messrs. Martiu and Fowler proved themselves, however, very closely-running opponents. The *Dorking* classes were extremely well filled, the best of any in the whole collection—so much so, that it caused no little difficulty to the Judges to even find a fault with various pens only highly commended. It is a peculiarity of this season's poultry shows, how much this class extends itself and improves throughout at each subsequent meeting. The *Buff Cochins* were quite as deservedly the object of the greatest interest to visitors. It is hopeless to expect better; but the *Partridge-coloured* and *White* ones, as a whole, were not nearly so perfect. The general class for *Brahmas* was capital, but the *Single Cuck* class of this variety was a complete failure. Most amateurs anticipated a close struggle for mastery in the *Game* classes, and truly enough every premium offered for this popular breed was hardly won, scarcely a pen could be found that was not shown in first-rate condition. The best show of *Hamburgs* ever yet seen at the Crystal Palace was on this occasion, the *Golden* varieties, if anything, being the most preferable. Messrs. Munn, Smith, Brooke, Hyde, and Carter, have good reasons, therefore, to exult in their pre-eminence. The *Black Polands* with white crests, though so slight an entry, were perfection; nor were the *Silver-spangled* less creditable; but the *Golden-spangled* were undoubtedly inferior. The prize pens of *Malays* were capital. Most of the classes for *Bantams* were good, the *Sebright* and *White* ones particularly so. The time of year alone prevented the *Game Bantam* classes showing in the condition we customarily meet with.

The *Water Fowls* were first-rate, almost without a single exception, and like the *Turkey poult* class were well filled. The ornamental classes for water fowls was a very pleasing one. The *Sebastopol Geese* have never yet been shown in so good trim, and took precedence. *Black Swans*, *Spur-winged Geese*, and some few other rare varieties, also proving most attractive.

The two classes for *Pheasants*, and the one for *Guinea Fowls*, only brought out a single entry as to the former two, and the same in the latter breed; and, perhaps, from such a result it might prove wise to expunge these premiums from the prize-list on future occasions, the efforts of the Crystal Palace Committee in these classes not meeting their due response.

REMINISCENCES OF A GAMEKEEPER.

(Continued from page 429.)

THE manager came. I knew little of such men; and when one morning I saw a sharp-looking man surveying all my premises, and jotting the result in his note-book, I asked him what he wanted. "Me?" said he in surprise. "What do I want? Do you know who I am?" I said I did not. "I am your master's manager." "Glad of it," said I. "I will point out to you what I want. I want four dog-kennels." "Surely you do not mean to keep four?" "Yes, more." "Cannot agree to that," and a memo. was made. "At present my own two dogs are shut up in a little knife-house. Look here." "Stay, are they tied up?" "No." "Then never mind; I do not want to see them." "I want guns, dogs, some Pheasants to breed from." "You misunderstand," said the agent, "you are here to preserve the game, and you are paid a large salary to do so; but if Mr. Flosse is to buy it, why, it seems to me you are useless." "But," said I, "there is none to preserve; the place is stripped." "How many will you want?" "Over such an extent, a hundred should be turned out at least, and they would cost—seventy-five pounds." "Positively wicked."

In this way everything was done. I was allowed to buy nothing; the manager provided all things. He went away with a list of my requirements; and, as our friends say, it was a "raale caution" to see the things I received, and the "letter of advice" I had from the "manager;" that Mr. Flosse was aware these dogs were not perfect, but that as I stated I thoroughly understood dog-breaking, I could break these before the season came in; that I should receive two guns, a double and a single-barrelled, which were both warranted to be safe; that I should be required to keep account of the expenditure of powder and shot, not only the quantity, but the purpose for which it was expended; that Mr. Flosse allowed no perquisites; that every Rabbit was to be trapped, and sent to market, and that the account was to be sent direct to the "manager."

Let me describe the dogs. Don, liver and white, very large, heavy dog, with a tail as thick as his legs, completely past work, and hopelessly deaf; would stand for a few seconds, and then rush in so cleverly it was a good bird or animal that escaped. The first time I took him out he did not offer to leave the foot-path till we got into some swedes. Here he deliberately surveyed the whole place, and noticing a hedgerow on one side, he made for it at a smartish pace. On his road he stopped, played in, and presently trotted along the swedes, head and tail erect, with a hen Pheasant in his mouth. He went into the hedgerow to eat it, and joined me half an hour afterwards.

Bob, a remarkably handsome black-ticked dog, four years old, had never been broken, or used for anything but a house-dog; very spiteful, as I found when I tried to flog him for chasing.

Fan, yellow and white setter, very beautiful, and excellent dog provided there was no gun, but she was gun-shy, and ran home directly a shot was fired.

Nod, called a retriever, never knew him find anything while I had him, except it was the luncheon if that was left behind. He was always on the look out for a bone or piece of food, and having found it, he was no use afterwards. Was told he had been used to lead a blind man.

This was my stock of dogs; but such as they were they must be fed, and I wrote to the "manager" to ask him to send me food. He said that which many people fancy—that there is always enough to feed a dog or two. He hoped I was not going to make "an item" of such a thing as that. I said I must have some meal and some flesh. He ordered me to get both. I said I must have food for my birds. He wanted to know how birds lived where there was no keeper. He desired me to send all bills to him, as no money was to pass through any hand but his. I was very glad it was so. I bought oats and barley of the tenants, and "manager" paid them by cheque, "less 5 per cent. for cash." The tenants did not understand the deduction, and manager was in hot water. They sent back the cheques, and he answered by saying it was the custom of the house to deduct 5 per cent. for cash from all private accounts. They came to me, and I could only refer them to manager. He stormed, and talked about the "house" and Mr. Flosse; but the passive resistance of the farmers was too much for him. He was told Mr. Flosse's money was no better than anybody else's; that anybody else would have paid at once without trying to cheat; and if he did not pay directly they would ask Mr. Flosse, and if he didn't pay why they would make him, that's all. Young Rooke, the lawyer, did not ask for better fun. He paid for the

corn, but none of the farmers would have any more dealings with him. Mr. Flosse had bought estates in all directions: everything was paid through the manager, and all money came from the counting-house.

On the last day of August, while I was busy preparing for the 1st of September, manager visited me to say he had made arrangements for the sale of the game; that he looked to me to see it was properly killed and taken care of; that I was responsible for every head; and that I was not under any circumstances to allow any one to have a head of game. I asked him who my party would be on the following day. He said two of the sons, and two friends from Oxford; that they would probably want to shoot in a most unbusiness-like manner, and that I must prevent it.

While he was speaking the sons and their friends came. Their business was to give me their orders, and to choose a gun for the youngest. He was a nice lad of about sixteen. His elder brother and friends were provided. I asked him whether he would have double or single. He said double, and I produced it. "Keeper," said the eldest son (he was a pompous empty-headed fellow), "I will thank you to give my brother a good gun, not a thing that is only fit to use for shooting sparrows off wheat." "It is the best I have," said I, "and it was sent by this gentleman." "Yes," said manager, "and I can produce a written warranty for its being safe." "I thought, sir," said the eldest son, "your department was only in business." "I am your father's cashier, and go where he pleases to send me. In buying these guns I followed his orders, and you must take any complaints you have to him." He was more than a match for the young ones, and they got from him by saying they would see the dogs; but manager followed. The son was pleased with the look of them, and ordered me to take Don and Bob, pointers, and Ned, the retriever, "and mind, keeper," said he, "I wish you to have the retriever in a slip. I am very particular about my dogs. You will see that plenty of powder and shot is provided, and come up to the Hall at nine o'clock." Manager told me I was not to provide ammunition for the friends; that the young men had brought them without their father's permission.

Not wishing to spoil sport, and knowing there were lots of birds, I took extra powder in the morning; but manager followed, and watched me everywhere. He was delighted with the look of his dogs, and I must say they looked well. I was soon fetched to the son, who desired me to see that all traps were in order. I asked him about the day. I supposed they would divide in two parties, two guns each. He said, No; that his brother would not shoot. We started. Below the park was what they called "The New Farm"—two hundred acres without a hedge; half was stubble; the other half swedes, mangold, rape, and potatoes. I knew if we heat the stubble first the cover would be full of birds. I trembled for the behaviour of my dogs. Ton would not leave my heels, and Bob was only waiting an excuse and opportunity to fasten on Don. Ned walked steadily on, sniffing to the right and left for a bone or anything else, and looked in everybody's face as though he would say, "Please to remember poor blind." I turned round once to look, and, to my surprise, manager was but a little distance behind. "Now, keeper, hunt your dogs," said the young master. "Hold up, Don." Fortunately while I said so a bird rose from the ground, and settled again within thirty yards. Don winded them, and began to draw. I knew if he got among them he would catch one, and there was an end of him for the day, I therefore said, "Follow up, gentlemen." A regular cloud of birds got up—ten brace at least. Six barrels were poured into them at thirty yards, and five or six fell. Don trotted up towards them, and Bob went off full cry after one that was winged. "Keeper, keeper," shouted the young gentleman, "make your pointers 'down charge,' and let your retriever loose." The retriever had been loose ever so long; but unluckily he had come across an old bone, and was contentedly gnawing it. Don had succeeded (it was the 1st of September, and the birds were not full grown) in getting two into his mouth, and, after having surveyed the country, he had pitched on the mangold as the best covert, and he was off, head and tail up, and with that stately step peculiar to dogs when they are carrying game. Bob had caught his bird, had torn it all to pieces, and was having a little game of his own a quarter of a mile off. "Stop that dog. Where is he going? What is his name? Shoot him, keeper! Too bad! Keeper, you should be ashamed, your dogs are under no command. Call him back." "It is

useless, sir; he is deaf." "Then why do you keep him?" "These dogs were provided for me." Four birds were picked up, and while they were loading manager came up. "Let me look at the birds. Ah!" said he, "these are too much shot; they will not sell. I must beg you to put in less powder and shot, or contrive in some way to damage them less." There were soon high words between the son and he, which ended in his going home. I told them I would find them plenty of sport without dogs, and I did so; but they shot very badly, and the result was a small bag. They were satisfied, but manager was not; he required to know the quantity of powder and shot that had been used; then the quantity required for one charge; and then with his pencil he had soon proved that it took five shots to kill one bird, that every one was a serious loss. I saw no more of him for six weeks. He then sent me word he would be at my house in the morning, that he wished to see me.

He desired me to read a paper. I found "Keeper £54 12s. per annum, house worth £5; keep of four dogs £16; powder and shot, &c., £13; one hundred Pheasants £75; food for ditto £22; three men as watchers occasionally £15. You will observe," he said, "I put only principal items—£200 12s. You say the Partridge shooting is nearly over, my sale-account for them—five hundred and eighteen birds—is £37 18s. You say Pheasants must be sparingly killed this year, and that not more than two hundred can be sold; they will make £30. I shall have £67 18s. to put against £200 12s., and this does not include outlay for dogs, guns, kennels, nets, pens, coops, and a hundred other things. You are a loss of £150 per year to the estate, and to my accounts: can you reduce the expenses?" "No," "Will you make me any proposition? I should like you for a certain sum to undertake the whole, to guarantee first-rate sport, and to supply the house with game." I declined it. "Then," said the manager, "I am sorry to say I must discharge you; I must find one to undertake the whole on my terms. As such a one will probably bring all he requires, will you take to the dogs and guns you have at a liberal discount from their cost price?" I declined, and thus I left Mr. Flosse.

Manager said he would recommend me freely for everything but dog-breaking. I had signally failed in that.

(To be continued.)

THE WONGO-WONGO PIGEON.

(*LEUCOZARCIA PICATA*.)

HAVING noticed the remarks made by a correspondent in the report of Pigeons at the Crystal Palace Show in your last week's Number, allow me to state I beg leave to differ with the statement there made about the Wongo-Wongo Pigeon being "utterly incapable of domestication."

I believe them to be very hardy; mine, having now been confined for some few months, are looking remarkably well and healthy, and, from what I have lately observed, have not the slightest doubt but that they will breed in this country, and are quite capable of being acclimatised.

To bear me out in my remarks, I find, on reference to the "Guide to the Zoological Gardens," the following description of them:—

"Australia is rich in Pigeons, not less than twenty-one species being figured in Mr. Gould's work. Of these the most desirable to acclimatise in Europe is the Wongo-Wongo. The Wongo-Wongo, of which the Society have recently received several newly-imported pairs, bred for the first time during the past season. It is not only of considerable size, but, according to Mr. Gould's observation, a first-rate bird for the table, possessing a whiteness and delicacy of texture in its pectoral muscles, which are unapproached by any other species of this widely-spread and useful family."

—A. G. BROOKE, *Peckham Rye*.

SPARROWS AND OTHER ANIMAL FRIENDS OF THE GARDENER.

SPARROWS eat the caterpillars which injure the gooseberry, cabbage, rose, &c., and they will open a pea-pod and take the maggot out without eating the peas! Seeing is believing.

The gooseberry caterpillar attacked our bushes severely, and, what was somewhat odd, not before the 1st of August. At that date the fruit was nearly ripe; to apply lime or hellebore was out of the question. What was to be done? for apparently either the trees or the fruit must perish. I was loath to part with either, because my master is very fond of fine, thin-skinned,

ripe gooseberries. But we had plenty of Sparrows about, and on the 3rd of August I saw the Sparrows on the gooseberry bushes. We had some Sparrows' nests (a second brood), and the old Sparrows fed them with caterpillars from the bushes before mentioned. I had the pleasure of seeing the parent birds move from the bushes to the nest eight times in nine minutes, each time with caterpillars in their beaks, and four times from the nest with the excrements of the young birds. On the 8th of August a caterpillar was not visible on the bushes, and there have been none on them since. Surely the caterpillars live more than eight days! What became of them then? I saw the Sparrows eat them, and heard the young chirp out loudly in anticipation of the expected food—caterpillars.

I once saw a Sparrow shot that had a cabbage-caterpillar in its mouth. Surely the Sparrow did not pick it up to play with, the same as a young cat does with a mouse.

That Sparrows eat peas and the buds of trees I admit; but this year caterpillars, grubs, &c., have been so abundant as not to induce them to eat our peas, pick our seeds out of the soil, or eat the few cherries we had.

The Sparrows scratch holes in our sandy walks—I have counted 100 of these holes—devour the seeds of various grasses, of *Poa annua* especially, and they like a little corn, &c., when they can catch it.

I could say more, but enough. Sparrows are of real service to man, and I am also able to defend the toad, hedgehog, Thrush, Blackbird, &c., which some people destroy wantonly, and, I am sorry to add, cruelly, wholly and solely because they have seen them eat something they ought not (in their estimation), but in reality because their natural food fails them, and they are compelled to consume a substitute.

Sea-gulls destroy snails and slugs, and earthworms also. This year 24,000 slugs were destroyed in our garden, and then, in June, we procured two young Sea-gulls, fed them on fish until they were able to find food for themselves, and they now keep snails, slugs, and worms completely under subjection. One wing of each was taken off at the first joint. The Gulls require plenty of water in a cistern, for they like to bathe.

We have also eight or nine hedgehogs, about twenty toads under glass, Blackbirds, Thrushes, and Sparrows without number, in a garden within three-quarters of a mile from the centre of a manufacturing town having a population over 100,000. I cannot (nor can any person else), see what injury they do in it or to the contents of the garden.—GEORGE ABBEY.

YOUNG BEES EXPELLED FROM HIVES.

It is one of the pleasantest sights to the apiarian to witness during the first burst of sunshine after ungenial weather the gambols of a flight of young bees, and one of the most painful to watch these issue slowly, crawling along the landing-board, sniff the uncongenial atmosphere of this cold world, wheel about to return to their snug domicile, this proceeding stoutly resisted by their elder brethren, which summarily throw them over the board, and hurry back to re-issue in pairs shortly, dragging between them a poor resisting youngster to augment the increasing heap of outcasts beneath, to the no small delight of a host of wolfish wasps there banqueting. This time last year this anomalous proceeding first attracted my attention, taking place at the entrance of my best-stored hive. I subsequently sought your opinion amongst other difficulties about "Bee-feeding and its Effects," in No. 634. That hive from being the best, even after throwing a couple of swarms last season, dwindled down to be the lightest, poorest, and most deficient in population this summer, and never swarmed. Beginning of this week I was chagrined to find the same work carried on extensively from a hive containing upwards of 20 lbs. of honey, and plenty of bees. It threw two swarms this season. Also to a lesser extent from a couple more hives; although clouds of fine young bees have issued from all my other hives at every wink of that fearfully watery Saint—Swithin. I send along with this, for your inspection, a dozen of the expelled bees. Your guess in reply to my former query was to a considerable extent quite correct as to their being "imperfectly developed," as on a more careful scrutiny this season, judging from their smaller size, paler colour, and feebleness, they must have issued prematurely and were therefore expelled; and I now wish, if not considered too troublesome, you could enlighten me as to the cause and cure. Fearing, although the hive was well stored, the "commissioners

of supply" might be under-estimating their "ways and means," I, therefore, added largely to the "rest" fund by copious feeding without one whit lessening the evil. Can blame be attachable to the queen, as in both extreme cases, last and this season, she was young? or can the long continuance of bad weather we have been visited with both seasons in any measure account for it, either by there being (although plenty of honey) a short supply of pollen so requisite to bring them to perfection, or by the bees being confined too much within the hive? the uniform closeness, perhaps, causing the young brood to issue before being properly matured, and their seniors, thinking such weaklings poor fellow-workers, at once pitch them overboard.

Your advice would oblige—A PERPLEXED YOUNG BEE-KEEPER.

[The bees accompanying your letter were so crushed during their transmission by post, as to preclude the possibility of making a satisfactory examination. We could, however, perceive that most, if not all, of them had defective wings, which sufficiently accounts for their expulsion. The only instance which we have known of young bees being expelled in so great numbers as to affect the prosperity of a colony occurred in July, 1859, when the combs of a hive collapsed, and its inhabitants perished from confinement during very hot weather. The combs being filled with brood were replaced, and the hive restocked immediately; but all the young bees were turned out to perish as fast as they came to maturity, owing to their wings remaining undeveloped. We believe that this effect was produced by the excessive heat to which the brood had been exposed, and fancy it may throw some light on the cause of your misfortune. During the reign (or rain) of St. Swithin, your juveniles appear to have been all right; but soon after hot weather set in, an issue of imperfect bees commenced. We are not at all sure that this hypothesis may be correct, but think it would be worth while to try the effect of shading the hives, and keeping them as cool as possible. We shall be glad to know the result.]

BEES IN SUGAR REFINERIES.

In a recent Number I noticed a quotation from the *Entomological Gazette* of Stettin, regarding the above subject; and in case any of your readers, located in the neighbourhood of a refinery, be tempted to follow in the footsteps of the farmers on the banks of the Oder, and start bee-keeping, or increase their stocks ten or twentyfold as they did, trusting to employ their industrious little servants, not in the laudable calling of carrying home the rich nectar from the too-fast fading flowers, but enlist them in the disreputable proceeding of pilfering from the refinery, may mention in the neighbouring town of Greenock, I presume the largest seat of this manufacture in the kingdom, possessing no fewer than fourteen large works of this description. The bee-keepers in the suburbs nearest the refineries ascribe their want of success, as contrasted with their brethren at the other extremity, solely to their greater proximity to these works, and look on them more in the light of "bee-traps" than anything else. On mild days early or late in the season when honey is scarce, their little favourites, thirsting for employment, wing their way they say to the refineries, attracted by the saccharine odours, hover about, gain an entrance at the first open door, and stick fast in the treacle or molasses never to return, or should they be more fortunate in getting a load, lose their way out in the labyrinth of the work, fly to the lights of one of the nearest closed windows, and perish in the spiders' webs that usually adorn them. It was only within the last month, that a venerable "blue apron" between eighty and ninety, told me his bees were doing him no good in late years since these "confounded sugar-houses" had been set up beside him.—A RENFREWSHIRE BEE-KEEPER.

[Our correspondent is undoubtedly right in his conclusions. Sugar refineries are far more likely to be slaughter-houses than feeding-places for bees.]

BEES IN FRANCE.—Accounts from Montpellier states that the present year will be one of the most remarkable as regards the production of bees. In some hives there have been already from two to three swarms; and it is expected that the yield in honey and wax will be so large as to compensate in some measure for the deficient crops in the Gironde and the Landes.—(*Paris Correspondent of the Times.*)

BEEES IN OBSERVATORY-HIVES.

A CORRESPONDENT in a former Number wishes to know if bees will live through the winter in observatory-hives. I have one of Tegetmeier's, four panes on each side, or twelve altogether, and with a thermometer; but the winter before last the bees all died in it, and a wooden-bar-frame hive; but, last autumn, I got four boards, lined with cloth, put all round the observatory, and a horse-cloth round the wooden one, and the bees did well in the observatory, but not so well in the wooden one; and I find there is a great deal of condensation in both which is bad, and would be better got rid of if one could. This last winter I discovered the cause of death the winter before, which was from several of the bees lying or hanging near the mouth, and the cold killing them, and thus stopping up the entrance, thereby causing suffocation: it is, therefore, necessary to have a piece of wire turned a little, and occasionally going and pulling out the dead bees; but care must be taken not to disturb those alive and pull them out also. I intend to keep the bees in the observatory-hive this winter, having added a Ligurian swarm to it.—A. W.

EARLY FEEDING REQUIRED FOR BEES.

I PURCHASED two skeps of bees on the 12th of July, they were new swarms of this season, and at the time I bought them weighed about 28 lbs. each. Soon after I had them I placed on the top of each an empty straw skep, thinking that as the hives were getting full the bees would then work into the top one; but in that I have been disappointed; and, during the last week or two not having seen many bees moving about, I this morning lifted one of them up, and was surprised to find it weigh so lightly. On looking into the hive I find that the bees have eaten nearly all the honey. Such being the case I shall feel obliged if you can tell me of any remedy, and if there is any likelihood of my keeping them alive through the winter.—T. C. M.

[Feeding must be at once resorted to. Lump sugar and water, in the proportions of three parts of sugar to two parts water (by weight), and boiled a minute or two, will do. The best mode of administering it is by means of an inverted bottle the mouth of which should be tied over with a bit of cap-net, and inserted through an opening in the top of the hive. This must be refilled as often as it is emptied, until the contents of the hive reach 20 lbs. If both colonies are treated in this manner, there is every probability of their surviving the winter.]

HOW TO STRAIN HONEY.

Box honey, and honey free from bee-bread, I put into a tin pan, or other vessel, and place it on a stove, or over the fire, and gradually melt the comb. This will rise on the top, and when cool I take the wax off. If the honey is badly candied, I add a very little water when I put the comb in. Water may be added sufficient to make the honey as limpid as desirable.

If the comb has bee-bread in it, I tie the comb up in a cloth, or put it in a bag, and hang it near the fire, so as to melt it, and let the honey drip out. Care should be taken not to squeeze or stir it, as that would cause the bee-bread to mix too much with the honey. If the honey is badly candied, after I have dripped out all I can, I add a little water, and melt as in the first instance, and filter the honey after the comb is removed.

Should there be much sediment and bee-bread, the whole may be clarified by adding about a teaspoonful of saleratus, to a gallon of honey, after the comb is removed, and bring it to a boiling heat. The sediment will rise, and may be skimmed off. Milk may be used instead of the saleratus. Water must be added to keep the honey at the consistency wanted. Bee culture can only be regarded as truly "the poetry of rural economy" when it is prosecuted not merely as a source of pecuniary profit, but also as a perennial fountain of intellectual enjoyment.—R. C. Otis, Bellevue, Ohio (in *Rural New Yorker*.)

[All supers and honey-boxes should be furnished with moveable comb-bars; and, where this is the case the cells only should be sliced off on each side of every comb, leaving their central foundations uninjured, and attached to the bar. These thin combs may be returned to the bees, and if the honey harvest be not over, they will elongate the cells from their rudiments and again fill them with honey. "B. & W." has combs which have been thrice filled this summer. After the honey season is over, these combs should be carefully preserved for future use. When

it is remembered that it has been stated that it takes 20 lbs. of honey to make 1 lb. of wax, the economy of this process becomes evident. It is to the Rev. J. D. Williams, of Farlow, that we are indebted for this valuable hint.—A DEVONSHIRE BEE-KEEPER.]

HISTORY OF THE AILANTHUS SILKWORM.

It was only towards the middle of the eighteenth century, about 120 years ago, that missionaries mentioned this worm. The Father Incarville was the first person to answer questions often before asked by naturalists. In 1773, the name of *Bombyx cynthia* was given to the parent moth by the famous entomologist Drury, in his illustrations of natural history.

The eggs of the *Bombyx cynthia* are twice as large as those of the common silkworm, and the females lay about one-half the quantity. The eggs are hatched in about eight days after they are laid. These worms, like many other species, change their skin four times before they begin to spin; the fourth time they become of an emerald green, and the extremities of the tubercles are turquoise blue; they are from sixty-five to eighty millimetres long.

In weaving their cocoons, these worms differ from the ordinary silkworms, for they make an elastic opening for the advent of the moth. The cocoons of the *Ailanthus silkworms* are long, and of a grey brownish colour, more or less pale according to the state in which they are cultivated. Till now, these cocoons being open at one end, have only been carded as wool or cotton; but further researches are being made, and, doubtless, will soon show us a method of spinning the silk like the Mulberry silkworm.

The quality of this new textile fabric has been studied and appreciated in France, where, after trying experiments with the castor-oil silkworm, they have arrived at the conclusion that the cocoons of the *Ailanthus* worms are far more valuable, as they are capable of taking an admirable dye. Monsieur H. Schlumberger, an eminent filateur at Guebrouiller, has found the *Ailanthus* cocoons easy to card and spin. The thread obtained is brilliant, smooth, and supple. The Father Incarville says, "The silk produced by the *Ailanthus* worms is of a *gris de lin*, lasts double the time any other silk does, and does not spot easily. The fabric that is made from it washes like linen."

HOW TO DESTROY WASPS' NESTS.

My method is so simple and efficient that it should be widely known. I give a lad 3d. per nest to destroy it, by taking a small watering-pot, devoted to the purpose, full of coal tar, cold, and pouring it into the hole till it is full. Nothing more is required, and the job is effectually done. The best time at this season is about half-past seven, when the inhabitants are nearly all at home. Rabbits may be destroyed by coal tar with but little trouble. Some litter should be taken to the holes and thoroughly saturated with the tar, and then thrust firmly into the mouth of each hole, pouring some over the litter after it is placed in its proper position, and banking up each hole with earth. Rats in banks may also be made very unhappy if coal tar is poured into their holes as soon as they are made, and into the mouths of all the old burrows. They are very clean animals, and the chances are that they may hold an "indignation meeting," and quit the locality in disgust.—T. R.

A SAVOURY DISH.—Put one pound of rice into five pints of cold water; boil it gently for two hours, by which time it will be a thick paste; then add two pints of skim milk and two ounces of Cheshire cheese grated fine, a little pepper and salt, and boil the whole very gently for another hour. It will produce nine pounds of macaroni rice.

OUR LETTER BOX.

POULTRY-HOUSE FLOOR (J. E. H.).—Asphalte or any other hard flooring is bad. Your mixture of finer ashes and gravel is excellent for the flooring. Never mind the fowls basking in it, for that benefits them, and a close-toothed rake will put all smooth, and remove the dung every morning.

RABBIT-BUTCHER (A *Would-be Rabbit Fancier*).—Although there is no need for a partitioned-off sleeping place in a buck's hutch, yet there is no objection to such a sleeping enclosure for him. In a hutch under a shed, though this be open in front, and with good bedding, we do not think that your Rabbits will suffer in ordinary winters, unless you live very far north.

WEEKLY CALENDAR.

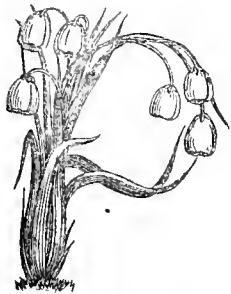
Day of M th	Day of Week.	SEPTEMBER 17—23, 1861.	WEATHER NEAR LONDON IN 1860.					Sun		Moon Rises and Sets	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.	Rises.	Sets.					
				deg. deg.			m. h.	m. h.	m. f.			m. s.	
17	Tu	Xeranthemum luckdum.	29.625—29.505	62—51	S.W.	.40	40 af 5	9 af 6	40 3	13		5 37	260
18	W	EMBER WEEK.	29.457—29.417	60—37	N.	.01	41 5	7 6	1 5	14		5 59	261
19	Th	Azalea serotina.	29.537—29.398	62—38	N.E.	.02	43 5	5 6	rises	0	6	20	262
20	F	Sun's declin. 1° 0' N.	29.795—29.708	67—48	W.	.22	44 5	2 6	a 6	16	6	41	263
21	S	ST. MATTHEW.	29.969—29.892	65—42	W.	.02	46 5	0 6	18 6	17	7	2	264
22	SUN	17 SUNDAY AFTER TRINITY.	29.673—29.616	62—41	S.W.	.50	48 5	v	41 6	18	7	23	265
23	M	Aralia spinosa.	29.694—29.646	59—34	S.W.	—	49 5	55 5	7 7	19	7	44	266

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 67.3° and 45.8° respectively. The greatest heat, 84°, occurred on the 17th in 1843; and the lowest cold, 29°, on the 20th in 1856. During the period 131 days were fine, and on 107 rain fell.

FLORA OF THE ROMAN CLASSICS;

OR, CATALOGUE OF PLANTS MENTIONED BY LATIN AUTHORS, WITH AN ATTEMPT TO IDENTIFY THEM.

ABIES.



OPULUS in fluviis, *Abies* in montibus altis." (The Poplar in streams, the Fir on lofty mountains.)—*Virgil's Eclog.* vii., 66.

"Etiam ardua Palma nascitur, et casus *Abies* visura marinos." (Thus too the lofty Palm is produced, and the Fir, likely to encounter ocean dangers.)—*Virgil's Georg.* ii., 68.

"Undique colles inclusere cavi, et nigra nemus *Abiete*

cingunt." (All around, the valleys and a grove of dark Fir enlose the hills.)—*Virgil's Aeneid.* viii., 598.

Pliny, after speaking of another coniferous tree—*Picea*, and saying, "Its branches are of moderate size, extending widely up almost from the root of the tree, and appearing like so many arms," adds, "Similiter *Abieti* expetie navigiis. Situs in exelso montium, seu maria fugeret: nec forma alia. Materies vero precipua trabibus, et plurimis vitæ operibus. Resina ei vitium, unde fructus unus *Piceæ*: exiguumque sudat aliquando contactu solis E diverso materies, quæ *Abieti* pulcherrima, *Piceæ* ad fissiles scandulas, cupasque, et pauca alia seamentum."—(*Natural Hist.*, xvi., c. 10.)—(Similar in growth is the Fir, of which the wood is highly esteemed for ship-building. It grows upon lofty mountains, as if it would avoid the sea. It does not differ from the *Picea* in appearance. Its timber is chiefly employed for rafters and many other domestic works. Resin in it is a defect, though it is one of the *Picea*'s profitable products; yet a small quantity usually exudes from it when exposed to the sun. Whilst the timber of the Fir is very superior, that of the *Picea* is merely used for shingles, casks, and a few purposes of rough carpentry.)

Again, when speaking of the same tree, Pliny says, "*Folia non decidunt Abieti.*" (The leaves of the Fir do not fall.)—(*Ibid.*, xvi., 21.)

The Fir tree is still called in Italian *Abeto*, and the especial Fir of Italy is the *Abies pectinata*, or Common Silver Fir. This agrees with the characteristics assigned to it by Virgil. It inhabits the alpine districts (in montibus altis). It is found throughout the Alps, as well as in the mountainous parts of Piedmont. Elevations from 2000 to 4500 feet are those where it chiefly abounds. It grows, also, throughout the whole chain of the Apennines. Its foliage is dark (nigra *abiete*), and it was from its size and lightness well suited to construct their navy and encounter the perils of the sea (casus marinos). So exclusively were their ships composed of this wood, that it was usual to describe them by various applications of the terms *abies* and *pinus*. Thus Virgil himself speaks

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of a ship by the term *abies* only (*Aeneid.* viii., 19), and Vallerius Flaccus terms the same *pinus cava*. The wood of this species of Fir is still largely employed for boat-building in Italy. Its branches extend around its stem like so many arms (velut brachia), as mentioned by Pliny, and is thus described by Gordon in his "Pinetum"—"It is a lofty tree, growing from 80 to 150 feet high, with an erect stem frequently 6 or 8 feet in diameter, regularly furnished with whorls of branches, which stand horizontal."

Palladius, when speaking of building materials, mentions another species of *Abies* in these terms:—"Abies, quam Gallicam vocant, nisi perlnatur, levis, rigida, et in operibus siceis perenne durabilis."—(*De Re Rustica*, xii., c. 15.)—(The Fir which they call the Gallic, unless it is much exposed to wet is light and stiff, and for dry purposes is everlasting.)

This is probably our Common Norway Spruce, *Abies excelsa*. Gordon, in speaking of it, says, "A fine lofty tree; timber light, elastic [the very words of Palladius], and not very resinous. It is known under the name of White Deal. It is very common, and forms forests on the Alps from east to west, and is principally found at a height varying from 4000 to 6500 feet; is common in Scandinavia, especially to the east of the mountains, and in the German plains, also from the Vosges in France (quam Gallicam vocant) to the Carpathians, and on the Pyrenæes."—G.

ROYAL HORTICULTURAL SOCIETY'S FLORAL SHOW.—SEPTEMBER 11.

THIS, the first grand Dahlia Show, richly deserved the name; for, notwithstanding the absence of some growers (conspicuous amongst whom was Mr. Charles Turner, of Slough, and of whose misfortunes I shall have to say a word presently), the show of that fine autumn flower was both extensive and good in quality, while the other florists' flowers were most admirable, displaying an increased attention both to growth and the obtaining of good sorts, and although the time of year was unfavourable to the attendance, yet it seemed to us that a goodly number were present. But what could be expected in such a glorious September as this? Who would not copy Tityrus, and say, if they could, "sub tegmine fagi?" or stretch their lazy limbs by the shore of old Homer's "much resounding sea," and listen to its sweet music? The arrangements were of the most admirable description, and spoke very highly for Mr. Eyles' administrative powers. I have seen ten times the "fuss and bother" in a small provincial show that was manifested on this occasion.

I do not think I am far wrong in ascribing (with Mr. Beaton) the chief interest in the Exhibition to the collection of Gladiolus, and prominent above the rest (indeed no point of comparison could for a moment be instituted between them and others) were those from Mr. Standish, of Bagshot, who contributed not only the two boxes required for exhibition, but a large collection besides, composed chiefly of his own seedlings. The most pleasing colours and the most delicate markings were combined with good shape; and although I do not think they were quite as good as those at the Palace (how could I when Mrs. Donbrain and Edith Donbrain were not there?) yet the

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collection was a most deeply interesting one. In those exhibited for the prize (those with *s* after them are Mr. Standish's own raising), which, of course, they gained, were—Lady Emily Seymour, *s*; Mr. Rucker, *s*, beautiful deep cerise, white throat and cerise feather; Lady Caroline Legge, *s*, pure white, plum feather; Isaac Anderson, *s*; Achille, a French sort, lovely deep cherry spotted with carmine, and yellow feather; Lady Wynn, *s*, striped; Mowbray Morris, *s*, crimson; Purple Gem, *s*, white shaded with purple; Lady Mary Hood, *s*; Amelia, orange scarlet; Caliph, cerise, striped with crimson; Helterii, deep crimson; Miss Graham, *s*, pure white, with plum feather; Mr. J. W. Lane, *s*, orange scarlet, yellow throat, scarlet feather; Col. Hood, *s*, deep scarlet; Pegasus; Prime Minister, deep purple; Madame Lesoble, white, with plum feather; Donald Beaton, *s*, a rather *brassy*-looking flower, showing as bold and braw a face as the veritable D. B. himself; Mrs. Menzies, *s*; Mrs. Duffield, *s*, orange scarlet; and Susan Ingram, *s*, white, with plum feather. In the other boxes were—Juliet, primrose; Colleen Bawn, *s*, striped carmine; Rowland Lilil, rose, carmine stripe; Bridesmaid, *s*, pure white, slight feather; Madame Rabourdin, shaded plum; Goldfinder, nice primrose; Mrs. Hole, described by Mr. Beaton last week, to be figured in the "Florist" for October; Tippoo Saib, *s*, orange; Towardii, orange salmon; Rose of England, *s*, brilliant cerise; Rembrandt, scarlet crimson; Mrs. Standish, *s*, white, with purple feather. Messrs. Paul & Son, of the Old Nurseries, Cheshunt, were second; and Messrs. Minchin and Son, Hook Norton, third.

In Gladioli in pots there was but one collection contributed by Mr. John Cattell, Westerham: it comprised—Sulphureus, Yollande, Bertha de Rabourdin, La Re de Oude (?), Anna Paulina, Vesta, Napoleon III., Vulcain, &c.

Roses were exhibited, considering all things, in better condition than might have been expected. Mr. Mitchell, of Piltown Nurseries, sent a fine collection, and was the only nurseryman who exhibited in the Forty-eight class.

The first prize for Twenty-fours, three trusses, amongst amateurs, was awarded to the Rev. F. W. Radclyffe, of Rushton, whose success was universally hailed with pleasure; for a more enthusiastic Rose grower, or a more genial and kind-hearted man does not exist. It was to me personally a great pleasure; for I had superintended the cutting of the blooms, had the arrangement of the box, and brought it up with me to London. It was won easily, the second box being a long way behind, and containing eighteen Teas in the twenty-four: it belonged to Mr. Hollingworth, of Caversham. The third was gained by Dr. Cooper, of Slough. Mr. Radclyffe's Roses were—Triomphe de Renne (three fine corymbs of flowers), Géant des Batailles, Céline Forestier (small blooms), Duchesse de Cambacères, Caroline de Saneal, Mrs. Elliott, Comte de Nanteuil, Duchesse d'Orléans, Orlaine Fontaine (very small, but pretty), Souvenir de la Malmaison, Reveil, Madame Knorr, Léon des Combats (the finest bloom I ever saw of this variety was one of this trio), Jules Margottin (very good), Devoniensis, Souvenir de la Reine de l'Angleterre (fresh and lively), Général Jacqueminot (a grand trio), Solfaterre (very good and full), Magador (damask, nice blooms of a by-no-means-common Rose), Elize Sauvage (small and pale), Duchess of Norfolk (splendid blooms), Gloire de Dijon, and Auguste-Mié. The greater portion of these were cut from Roses on Manetti stocks, and nothing can exceed the vigour and beauty of the plants.

In Twenty-four Roses, single blooms, Mr. John Keynes, of Salisbury, was first; and Mr. Laing, of Twickenham, second.

In Dahlias, Mr. Keynes, of Salisbury, was first in all these classes with some very fine flowers; his generally successful opponent, Mr. Turner, being quite *hors de combat*. I have heard of thrips doing injury, but could never believe the devastation it could create till I saw it at Slough—plants of the most vigorous character, with Brobdignagian leaves 1 foot in length and 9 inches in width, with every flower on them rolled or pasted together, and from every bloom hundreds of the little black *varmin* could be shaken. Every means that an able and ardent cultivator could take were adopted, but all in vain—they got through everything; and so at last Mr. Turner gave it up, took off his sludges, and wisely determined not to exhibit any more.

In the class of Forty-eight blooms, Mr. Keynes' flowers were—Disraeli, Cherub, Colonel Wyndham, Golden Drop, Mentor, Joy, Lord Palmerston, Mauve, Lilac Queen, Sir G. Douglas, Queen (Kimberley), John Keynes, Earl of Shaftesbury, Lord Cardigan, Umpire (a lovely flower), Sidney Herbert, Mrs.

Church, Mrs. Critchett, Hugh Miller, King of Sweden, Lollipop, Mr. Dodds, George Elliott (very fine), Pioneer, Black Prince, Marquis of Bowmont, Mr. Boshell, Oscar, Leopard, Mrs. Trotter, Rosebud, Lady Pennant (seedling), Goldfinder (seedling), Imperial, Rosa, Pandora, Chairman, Commander, Triomphe de Pecq, Jenny Austin, Lady Franklin, Andrew Dodds, Mrs. Balsache (beautiful peach), Juno, Perfection, and Mr. Waters. The second prize was obtained by Mr. John Harrison, of Darlington; third by Mr. May, of Bedale, Yorkshire; and fourth by Mr. Kimberley.

In Twenty-fours Mr. Keynes had a very charming box of Disraeli, Chairman, Lady Pennant, Golden Drop, Andrew Dodds, George Elliott, Sir G. Douglas, Lilac Queen, Perfection, Mrs. Trotter, Lady Franklin, Kimberley's Queen, Lord Palmerston, Jenny Austin, Triomphe de Pecq, Hugh Millar, John Keynes, Flower of the Day, Pandora, Mrs. Dodds, Mauve, Juno, Earl of Shaftesbury, and Colonel Wyndham. Mr. H. Legge, of Edmonton, was second; Mr. H. May, third; Mr. Harrison, fourth; and an extra prize was awarded to Messrs. Downie, Laird, & Laing, of Stanstead Park Nurseries, Forest Hill.

In Eighteen Fancies Mr. Keynes was again first with fine blooms of Harlequin, Pluto (splendid), Queen Mab (a very fine flower), Souter Johnny, Miss Jones, Starlight, Zebra, Conqueror, Baron Alderson, Garibaldi, Impératrice Eugénie, Lady Paxton, Leopard, Marc Antony, Confidence, and Mary Lauder. Mr. Legge, of Edmonton, second; Mr. Kimberley, third; and Messrs. Downie, Laird, & Laing fourth.

Amongst amateurs there was some very sharp fighting indeed. In Twenty-fours the Rev. Charles Fellowes, of Shottisham, was first with Fanny Keynes (which he can grow as no one else in England can), Pre-eminent, Clara Novello, Beauty of Hilberton, Norfolk Hero, Pioneer, Bravo, Chairman, Mr. Stocker, Sir G. Douglas, Mentor, Lady Taunton, Purple Standard, Criterion, Golden Drop, Triomphe de Pecq, Lord Palmerston, Madge Wildfire, Mr. Dodds, Earl of Shaftesbury, Heroine, Madame Albani, and Majestic.

In Twelves Mr. Barnard was first, the Rev. C. Fellowes second, Mr. W. Dodds third, and Rev. T. Charlton fourth. Mr. Barnard's flowers were—Chairman, Lilac Queen, Chancellor, Lady Popham, Mrs. Balsache, Triomphe de Pecq, John Dory, Duke of Roxburgh, Mrs. Pigott, Beauty of Hilberton, Jenny Austin, and Earl of Shaftesbury.

In Sixes, where the contest was very sharp, Mr. Pope was first with Lollipop, Lord Palmerston, Earl of Shaftesbury, Mrs. H. Vise, Chairman, and Bravo. The Rev. C. Fellowes was second; Mr. Barnard, of Darlington, third; and Mr. H. Glascock, of Bishop Stortford, fourth.

In Twelve Fancies the first prize was obtained by the Rev. C. Fellowes, with Harlequin, Elizabeth, Conqueror, Oliver Twist, Lady Paxton, Madame Albani, Queen Mab, The Flirt, Baron Alderson, Summertime, Pauline, and Ethel. Mr. Perry, of Castle Bromwich, was second; Mr. Dodds, third; and Mr. Corp, of Milford, near Salisbury, fourth.

The finest seedling Dahlia was Lord Derby, exhibited by Mr. Pope, of Chelsea. For this a First-class Certificate was awarded. Labels of Commendation were also given to Black Prince, Goldfinder, and Delicata; and a First-class Certificate to Model, an orange flower of fine properties.

Hollyhocks, considering the lateness of the day, were shown in fine condition. The first prize for Twelve Spikes was obtained by Messrs. Downie, Laird, & Laing, with Lady Dacre, Rosy Gem, Memnon, Golden Fleece, Mr. Blackwood, David Fowler, Monarch, Excelsior, Dr. Canning, Empress Eugénie, Mrs. Deans, Mr. T. Mackenzie, and Stanstead Rival. The second prize was obtained by Mr. Chater, of Saffron Walden.

In cut blooms of Twelve varieties Mr. May, of Bedale, was first; Mr. Minchin, of Hook Norton, second; Messrs. Downie, Laird, & Laing, third; and Mr. Chater, of Saffron Walden, fourth. Mr. May's flowers were—Regina, pink; Mr. Wardrop, scarlet; Empress Eugénie, blush; Memnon, scarlet; Lord Loughborough, crimson; Yellow Defiance, yellow; Perfection, pink; Walden Masterpiece, orange; Lord Taunton, dark; Ossian, scarlet; Lizzy Roberts, primrose; and Mrs. B. Cochrane, scarlets.

Asters, both German and French, were truly grand; and again Mr. Betteridge was first in the former, and Mr. Sandford in the latter, with boxes which were the very model of growth. The prizes were distributed thus—German Asters, first, Mr. Betteridge; second, Mr. Westbrook, of Abingdon; third, Mr. Molyneux, of Nuneham Park; and fourth, Messrs. Minchin and

Son, of Hook Norton. Mark how all the prizes for this class are gained by growers in the same locality; the soil must suit and the strain of seed there be good.

In French Asters, Mr. Chas. Sandford, gardener to T. Thomsett, Esq., of Walthamstow was first; Mr. Betteridge, second; Mr. Sandford, third; and Mr. Percival, of Leyton, fourth. There were some magnificent blooms in these boxes.

Phloxes in pots were exhibited by Mr. John Cattell, of Westerham, and Mr. Standish, of Bagshot, the former taking first with fine plants; the latter second with a dwarf but not so well-bloomed a lot.

In Cut Blooms the order was reversed, Mr. Standish being first, and Mr. Cattell second. The blooms in Mr. Standish's box were—Madame Lierval, Hebe, Madame Henry, Marie, Louis Gerard, Madame Amazeli Potier, Monsieur Forest, Dr. Bois Duval, Madame Moisson, Mr. Durand, Mr. Punch, John Standish, George Washington, Madame Amice, Madame Vilmorin, Jean de Baptiste, Annie Laurie, Benjamin Franklin, Madame Maison, Madame de Chambry, and Lord Clyde. There is no flower that so soon fades when cut as the Phlox, and I fear it will not be an exhibition flower for that reason, and there is also a very great similarity amongst them.

Some fine stands of Verbenas were staged, although late in the year. Mr. Perry, of Castle Bromwich, was first. His flowers were—Admiral Dundas, Magnificens, Fairest of the Fair, Emperor, Firedry, General Simpson, King of Verbenas, Reine des Amazones, and a number of seedlings. Messrs. Minchin & Son were second; and Dr. Cooper, of Slough, third.

I have not ventured to touch upon the miscellaneous plants in the Exhibition. I saw a "chiel" there busy with his notebook, and so kept clear of a department which he has at his fingers' ends, and of which he will give us, no doubt, a good account. The general opinion of the Exhibition was a favourable one, and I have but little doubt that next year will witness a considerable advance; the Great Exhibition will then be open, and all will be trying to do their very best for it.—D., Deal.

THIS was the first recognised exhibition of florists' flowers which was ever held under the wings of the greatest horticultural society in the world. How extraordinary the change seemed to me from a show morning at Chiswick, with all of which, before and behind the scenes, I was quite familiar for the last quarter of a century! Old things have passed away, and the sooner we forget them the more soon we shall gain the balance of our past temperature to warm the air for erring mortals like ourselves; for the count is just as heavy against the florists as against the glories of Chiswick. We have, all of us, had our day and our faults—good for us and for our cause, if we acknowledge the facts, and draw profit from our failures.

One thing was a most striking improvement at this Show—there were no heaps of green fruit; and a bold and manly stroke was exhibited by the sole manager of these Shows in the very centre of the conservatory, to put down, as far as we may, the most mischievous of all our exhibition faults—that is, to do away as far as we can with cut flowers altogether. Hundreds of beautiful China Asters were put up in pots by Mr. Eyles on the centre stand, beautifully bloomed. Mr. Cattell and Mr. Standish put up Phloxes in pots, better done than you see them in the beds and borders of many people who pride themselves on their gardening. Mr. Cattell also exhibited a large collection of Gladioluses in pots, and sooner or later we must have them all in pots.

The most valuable things, however, for country gardeners are the new accessions made of late years for the decoration of living-rooms and conservatories in August, September, and October, or till the Chrysanthemums come in. I am quite certain this is now the greatest want in any branch of our craft. These new accessions came up to that Show principally from the Messrs. Veitch, and Mr. Bull, their next-door neighbour, in the shape of two sections of *Amaranthus* from the Exotic, and the new *Coleus Verschaffeltii* from Mr. Bull. This kind of *Coleus* is just as effective, and four times more so, than the best variety of *Gesnera zebrina*, before and after it blooms; and from early spring cuttings you can have it 4 feet across and a yard high with the pot by the 1st of August. From then to the time of the Chrysanthemums, you may have it in lines, alternating with some strong variegated something up each side of the grand staircase, in the statuary, the front hall or front gallery, along corridors, and next the open windows, all along the suite of drawing-rooms; and in all such places you can give it the same power of effecting magic as they, us, we and ours do with *Verbena Purple King*. The

two sections of the *Amaranthus* from the Messrs. Veitch—I mean their rich collection of varieties of *Amaranthus tricolor*, and of *Celosia coccinea*, or *cristata*, on the natural system—that is to say, great close-growing, bush-like plants, with all the ends of the shoots run up into flower-spikes of intensely rich tints of crimson, scarlet, or yellow; and these are the natural form of the plant from which *cristata*, or our Cockscombs, have been made by the industry of the Japan and Chinese gardeners hundreds of years back. These come from seeds, and require the same stove heat and management as the Cockscombs till they are in bloom, but after that no plants are more useful to living-room decoration and for warm conservatories in the autumn; or, like *Coleus* they can all be thrown to the dogs when done flowering, and no bother to find room and patience for them over a winter. I repeat, these three sections of hothouse annuals were the most valuable things exhibited to a large class of country people.

The rest of the Exhibition, except the Roses, was much the same as at the Crystal Palace; but the Roses were grand indeed. Mr. Mitchell had more blooms and more kinds than most exhibitors set up in June and July; there were one hundred kinds in one of his collections in the way of extras. But here we must part company for the day. A highly scientific florist will do what I could not for this Journal, and I shall go on in my old style of reviewing things.

I began with the Messrs. Veitch's show of miscellaneous plants, beginning with the three dwarf *Cryptomerias* they had in May; a *Thuja pygmaea*, 8 inches high and 15 inches across the top; the same *Libocedrus tetragona*, with a season's growth since last June show; a fine assortment of most beautiful varieties of *Amaranthus tricolor* aforesaid; the best of all double *Petunias*—the Inimitable; two large made-up masses of *Odontoglossum grande*, each with a dozen to fifteen spikes of bloom, and from three to four blooms on each, or it may be fifty blooms for each pan. As this is the hardiest, the most easy to do, and the very finest of all the Mexican Orchids, including *Laelia superbiens*, every one who can afford it should grow it by the dozens and scores, and by means well known in the craft have it in succession for the drawing-room from August to Christmas. *Campylobotrys* of sorts, *Aralias*, *Cucurbita Roscoeana*—who will give the name of that tint of colour peculiar to the flower-bracts of this plant? *Cyanophyllum*, of sorts; most charming pans of the two kinds of *Sonerila margaritacea*—grow this also by the score in No. 60-pots, have the small pots plunged in a box of sand or sifted leaf-mould till the season's growth is nearly finished, to lessen the necessity of watering often, then you can fill or fit any drawing-room article for keeping flowers at an hour's notice, and no plant was ever more at home on a drawing-room stand than this; *Alocasia metallica*, with nine fine leaves and a flower-spathe; *Alocasia macrorrhiza variegata*, the finest of that order; *Elaeagnus japonicus variegatus*, not much among so many as we possess now; *Yucca quadricolor*, a most useful plant; *Cordylina indivisa*; and fine plants of *Caladium Veitchii*, a very distinct kind, and the end of this group on the front shelf of the house.

The next on in order and worth talking about, was a most beautiful dish or basket of Mill Hill Hamburgh Grapes from Mr. Drummond, gardener to J. S. Smith, Esq., Beechwood, Tunbridge Wells; then some fine Cockscombs and cut *Amaranthus* from Mr. Tester, gardener to Mrs. Rush, Elsenham Hall, Stortford; after them eight immense Cockscombs from Mr. Titmarsh, Edmonton; next a collection of nice kinds of dwarf *Tropaeolums* from Mr. Cattell, nurseryman, Westerham, Kent, who was a successful exhibitor in the common-sense departments all over the Exhibition.

Here the Messrs. Lee set up a collection of fine-leaved plants and Ferns, such as *Dicksonia antarctica*, *Cordylina indivisa*, *Ropala*, *Geopteris Fosteri*, *Cyathea Smithii*, variegated *Cobaea*, and a Myrtle-leaved Orange in fruit. At the east end of the house Mr. Bull set up six large specimen plants of the *Coleus Verschaffeltii* aforesaid; also twelve smaller plants of it in No. 32-pots; a *Saracenia purpurea*, with seventeen pitchers on it; *Yucca quadricolor*, *Theophrasta imperialis*, *Pavetta borbonica*, *Cibotium princeps*, *Gesnera velutina*, the richest variety of *zebrina*; *Polka purpurea*, a new dark purple metallic-like *Tradescantia*; *Caladiums*; Palms; a golden gem called *Gymnogramma pulchella ramosa*; *Cyanophyllum speciosum*, which seems intermediate between *magnificum* and *assamicum*; *Rhodea japonica macrophylla*, with thick green leaves broadly margined with white as in *Aspidistra lurida*, and several others of that stamp—all nice-looking plants.

On the centre stands the Messrs. Lee set up a second large collection of very choice plants, which were very well set for effect. They made choice of *Aloesia metallica* for a centre or key plant; and on each side of it match duplicates to the extent of 12 yards. Among them were pairs of the following—*Alsophila australis*, a fine Fern; *Todea pellucida*; *Polystichum vestitum*, venustum; *Lomaria fluviatilis*; *Pteris cretica albo-lineata* and *argyrea*; *Darcia cicutarium*; *Gleichenia dicarpa*; *Cyathea dealbata*; *Caladiums*, *Cordylines*, *Dracenas*, and others. The Messrs. Lane sent a collection of forty-four fruit trees in pots, consisting of Peaches, Nectarines, and Grapes.

From the Society's Chiswick Garden they sent a dozen of finely-grown Begonias of the first class, such as *Argentea guttata*, *tsis*, *nebulosa*, *Marshalli*, *Madame Aldworth*, and if there is a difference between it and the last, it is not that they are not alike; *marmorata*, *Rex*, and others in fine condition; also, some nice pot Zonle and plain-leaved Geraniums. Here stood a noble specimen of *Lapageria rosea*, with thirty-six open blooms, from Mr. Uzzell, gardener to her grace the Duchess Dowager of Northumberland, at Twickenham.

Then forty-four pots of Japan Lilies, from Mr. Turner, of Slough, and six large specimens of the same from Mr. Cutbush, of Highgate. A noble collection of the free-feathered, branching *Amaranthus*; the wild Cockscombs of three or four shades of scarlet and crimson; and a yellow kind from the Messrs. Veitch. Twelve finely done Gladioli in pots from Mr. Cattell. A large collection of rare Conifers from Mr. Glendening. A fine collection of the best variegated Geraniums from Messrs. E. G. Henderson & Son, exceedingly well set for effect. They were nine kinds, and four plants of each kind in one row across the stage on this wise—four Golden Harkaway, four Fairy, four Mrs. Pollock, four Yellow Belt, four Empress, four Sunset, the tint of them all, and four Countess.

A gentleman, who had seen Sunset planted out at the Wellington Road Nursery, told me a week back it was the best he had ever seen, and he is no bad judge of such things. But an old puzzle asks the question, How would you set up nineteen variegated Geraniums like these in nine rows, and nine plants to be in every row? The very first who shall send me a diagram to do that with shall have a donkey large as the one Mr. Judd refused. Another puzzle stood by these—a lot of variegated little *Veronica Andersoni* in No. 60-pots, looking for all the world to be that form of an old *Cineraria amelloides*, and now *Agathaea coelestis variegata*, of which I hear that which pleases me not. These were from Mr. McIntosh, of Hammersmith, who also sent *Thuja orientalis variegata* and others.

Mr. Williams, of the Paradise Nursery, had there a strange little Orchid, a species of *Ionopsis*, not unlike some delicate *Odontoglossum*, and the nondescript plant he sent in June last, which grows in green flaps like some *Opuntia*, and with as little nourishment, by all appearances. He called it "an unknown plant"—he meant an unnamed one. Here, also, stood a strong-leaved yellow-leaved Geranium called Gold Leaf, from the Wellington Road Nursery. It is in the way of Golden Fleece, but stronger, and of a more permanent tint; and eight pots of the pretty little *Sedum carneum variegatum*, as like young plants of the variegated *Alyssum* as can be. Then two kinds of *Retinospora*—*obtusata* and *pisifera*—from the Exotic Nursery, and looking like *Thuja*. Then there were fringed single *Pianthus superba hybrida* from Mr. Stanning, Shipston-upon-Stour.

There was a fine-bloomed specimen of the true *Anigozanthus Manglesi* at last from Mr. Kinghorn, of East Sheen or Richmond Nursery. Many seeds and dried specimens of this extraordinary plant have been sent here from Australia in my time, but the living curiosity I never saw till that day. The flower, like those of the whole of this genus, is borne aloft on a long stalk or scape, which is covered with purple down like the young of *Ropalas*. The flowers are lacinated more than in any of the older kinds, and are as bright green as an emerald. Mr. Bull was here again at the west end with a lot of fine-leaved plants; and the Messrs. Smith, of Dulwich, by his side with a fine seedling *Petunia*, named after Madam Smith, a clear white limb and a crimson starry throat; and a new white *Fuchsia*, called *Marchioness of Bath*, from Mr. Wheeler, of Warminster. Mr. Cattell and Mr. Standish had a collection of *Phloxes* in pots—the right way to show them; I have all the names, which will keep till snipe-shooting time, the proper time to order them, and to plant new plantations of them.

I had another look at the Gladioluses, and found some new ones, and something else: I caught one of the Floral Committee,

Mr. Ivory, of Dorking, taking the names of what he thought the best to buy; and being a very keen-eyed Fellow of the Royal Horticultural Society, I got him to compare notes with me, when I found we only differed in two names he had over me at the Crystal Palace, and I took his selection at this show to save my credit with the florists for not poaching in their preserves, and here they are; but I looked them all over to checkmate him:—*Lady Caroline Legge*; *Purple Queen*, which, by the way, has not one shade of purple in it; *Achille*; *Miss Graham*; *Madame Vilmorin*; *Osiris*, all in Mr. Standish's lot; and *Egerie* in that from Messrs. Paul & Son. The *Lady Caroline Legge* is a pure ivory-white ground, firm as in *Stanhopeas*, an orange eye, and crimson feathers. *Purple Queen* is a beautiful lilac ground, variously streaked. *Miss Graham*, a most ladylike flower in white, and a highly-feathered nest in the right place—the throat, of course. Talk about feathering one's nest! here is a good chance at all events. *Achille*, a fine bright scarlet, with an orange mark in the throat. *Egerie* is of that peculiar light orange and salmon, after some *Dendrobium*. But for the comfort of poor relations, there is not one of the race better for a bed than *branchleyensis* at 4s. the dozen flowering roots fresh from the Dutch growers.

The most curious plant at this show was the great Chiloe Rhubarb plant in fruit—the *Gunnera scabra*, often mentioned in my accounts of Kew. Another curious one is *Campanula campanulata*, a climber, and a botanical curiosity in the eyes of a gardener no less than some *Stapelia* flower transformed into a Canterbury Bell, or *Campanula* flower, a climber from Mr. Standish.

D. BEATON.

WHAT PREYS UPON FARFUGIUM GRANDE?

I FIND continually my *Farfugium grande* leaves eaten in holes. I have looked them over at night, and but once found a caterpillar. They are eaten in holes, and seldom from the outer edge. Can you suggest a trap?—H. B.

[Every creeping thing that happens to come near our *Farfugiums* will have a bite at them; and everything on the wing which has a liking for a Peach or a Plum seems to have the same fancy for the leaves of *Farfugium*. The consequence is, that each season it is well on in June before we are masters of our own *Farfugiums*, after conquering all its enemies and our tormentors. But sad to say, there is nothing new in our mode of warfare. Greasy Cabbage leaves, or those of a Savoy dipped in a pot out of which a hock of bacon was just taken, will entice and entangle all the slimy snails and slug race, and enable the enticer to rid one acre of land of every one of them in one week, and the unhatched ones come after and go the same gate. Then for the crawlers and creepers, beanstalks and pipy reeds make the best retreat for them by day, and once a-day will clear out the daily entrapped ones by blowing them through the pipes into a can of water. But with them all we had to look, not over the plants, but under them, for days and weeks, to catch very small, light green, mining caterpillars, which stick at nothing that is green and sappy. Now our *Farfugiums* are well worth the extra care.]

NOTES MADE AT THE CRYSTAL PALACE,

SEPTEMBER 4.

THE general features of this remarkable garden being well known to the readers of THE JOURNAL OF HORTICULTURE from the many descriptions of it by preceding writers, and a lengthened report of the late Show having appeared from the pen of one who doubtless took more notice of it in detail than I did, I will confine my remarks to such objects as struck me as being more than usually remarkable, and commencing with the interior of the house. The first thing that will strike the occasional visitor having an eye on gardening matters is the progress made by the creepers and stationary plants; those in the tropical end especially being advanced to a condition which gives one some idea of eastern vegetation. Even the more half-hardy plants from Australia, Japan, and China seem to have advanced in a manner that will in a short time give the beholder some idea of the scenery they are meant to represent; but the loftiness of the building will enable them to grow for many years yet: suffice it, however, to say, that they were in good health and looked well. The Show itself was not so extensive as has been seen, there

being but few plants. No prizes being offered for them, only novelties were sent.

Fruit, however, was good, though in some of the classes, as Grapes and Peaches, it was far from plentiful. Melons, Apples, and Plums were well represented; and some Grapes from near Liverpool were magnificent—three bunches of Black Hamburgs weighing 10½ lbs. and as black as jet. The White Muscats were also in general fine and ripe, but there seemed a scarcity of other White kinds. A large bunch of this colour, however, obtained the first prize for a heavy bunch, beating a Black Hamburg that was in every other respect its superior. The White one being in fact green, its name did not appear, but it was not the Syrian. Pines were good, but not numerous. A singularity in the growth of this fruit was awarded a prize in the character of a good-sized fruit surrounded by a cluster of gill-suckers, the base of each also containing a small fruit, the whole presenting a mass of fruit, crown and sucker, at once singular and remarkable. There were some good Queens there, but the other kinds were not well represented.

The Cut Flowers attracted their full meed of attention. Asters being very fine, as likewise were Dahlias. Gladioluses I think have been better; the season latterly has doubtless been too dry for them and Phloxes. Roses were tolerably good, but not numerous; and Hollyhocks superb, especially the spikes, which is the only legitimate way of exhibiting these flowers. A group of *Tritoma uvaria* in pots looked well; and what must not be forgotten, as it formed the subject of much conversation amongst gardeners, were a quantity of fruit trees in pots in full bearing—Peaches, Nectarines, and Plums. And as I expect they were representatives of orchard-house cultivation, it is likely the admirers of such things felt some little pride at the show they presented. But as I have on former occasions expressed an adverse opinion on this mode of obtaining choice fruit for table, I will say no more than that the specimens at the Crystal Palace Show rather confirmed me in that opinion than produced an opposite one. This opinion, I think, was that of the majority of those present, the fruit being so very small.

In the grounds I was surprised to see the effects of the dry weather so perceptible, the turf being more burnt up than I ever saw turf in my life, excepting such as had been recently laid down—so brown, in fact, that there seemed no hopes of its recovery for many plots of nearly an acre together. I am told it has never been so bad before. I think excessive wear must have had something to do with it. The flower-beds, however, were in most cases in their prime, and, with the exception of the first year, I never saw them look so well. The varieties of plants used in the chain-beds on the terrace gardens being few and well chosen have a much better effect than where larger mixtures are made; for two or three distinct colours, when looked at at the distance of a hundred yards or more, have a much better effect than when the bed is broken up into segments of many hues. One of the sets of chain-beds was its whole length planted all alike in stripes running lengthways. The beds being something like 8 feet or more wide, were divided into five rows—the centre row being the Crystal Palace Scarlet Geranium; the two rows next it, Geranium Christina; and the two outer rows next the grass, Verbena Purple King. Nothing could well look prettier than these did, unless it were some rings or bands around some Araucarias and other trees on the upper terrace. These trees occupy a circular space of some 20 feet or more in diameter, a portion nearest the tree of some 6 feet, perhaps, being vacant; the remainder being planted with *Lobelia speciosa*, having an outside margin of *Cerastium* and an inside ring of the same. The soft effect of these two slender rings of *Cerastium* with the broad band of *Lobelia* when seen from the balconies was very pleasing—more so than if more glaring colours had been used. There were some other rings of other materials, but the one above pleased me most.

I was much surprised to find the *Perilla nankimensis* so little used—in fact, I did not see a plant of it, while in the most gardens I have been in it forms the best feature in them. The Variegated *Alyssum* has, however, been extensively used at the Crystal Palace with good effect. Some beds having a centre of yellow *Calceolaria*, then a rim of Scarlet Geranium, and then an edging of *Alyssum* looked very well; and one panel in the upper terrace having a series of beds surrounding it were all planted in this manner. There were also some very good striped borders at the Rose Mount, one of which consisted thus, beginning at the top or back row:—

First row.—Geranium *Trentham* Rose, or one like it.

Second row.—*Calceolaria*, yellow.

Third row.—Geranium *Trentham* or Crystal Palace Scarlet.

Fourth row.—Verbena Purple King.

Fifth row.—*Tropaeolum elegans*.

Sixth row.—Geranium *Mangles'* Variegated.

Some other stripes were done differently to the above, but those having fewest colours invariably looked best. In the circular beds scattered over the ground in the direction of the Rose Mount were some very good mixtures in various ways; and a good Geranium of the *Crimson Nosegay* class, which I noticed here, was new to me and promises to be a useful one. Verbenas seemed to be but little used, and what Dahlias there were had scarcely begun to flower. *Calceolarias* everywhere seemed to do well and were in full flower. *Lobelia speciosa* was also extensively used and with good effect, and some beds of *Gazania rigens* were as full of flower as it is generally met with. But I did not see any new *Tropaeolums*, and *Petunias* were few, and Verbenas were confined to a very few kinds. But the mass of flower was good in a general way; perhaps some of it was going off. The vases, certainly, were not so pretty as I have seen them. This is, doubtless, accounted for by the wind; and the walks, like many things else in the world, are certainly better to look at than to use, as nothing can be really more uncomfortable than the sharp loose gravel they are composed of. Were they more agreeable to walk upon, the turf would not be so much worn. In the matter of walks, utility ought to be as much considered as appearance; but those at the Crystal Palace are as unpleasant to walk upon as anything can well be. The display of fountains was good, and the appearance of the shrubs and trees generally was healthy. Some showed symptoms of having being hurt by the severe weather of last winter; but the appearance of the burnt-up turf by the hot weather in August, struck me and others as being more remarkable than anything I had witnessed in that way since the dry season of 1826, but of the cause of this something will, perhaps, be said hereafter.—J. ROBSON.

PROPAGATING-PIT NOT ANSWERING.

Some time ago I put up a small propagating-pit, heated with hot-water pipes, which are all confined in a brick chamber, and surrounded with fireclay; brickbats are put in as loose as possible to the depth of about 12 inches over the pipes; I then laid fire-clay pavement over these, keeping the joints pretty open, and for plunging material about 4 inches of rough sawdust. For top heat I have two-inch drain-pipes set up over three of the pavement joinings, and down these pipes I pour water, which finds its way to the heated brickbats below, and sends up a fine moisture.

The heat, however, seems to come and go at times, which I cannot understand—sometimes over-hot, at other times too cold: can you give me any explanation? Would it have been better with gravel instead of the pavement? Also, please to say if my plunging material is good, and is it deep enough for small cutting-pots? I find worms work a good deal in sawdust.—SENATEUR VAISE.

[Your pit, constructed as you say, ought to do you good service; but there must be something wrong in the heating apparatus to cause it to fluctuate as you describe, as a steady and continuous fire ought always to give out a regular heat. It would, however, have been better had you had one pipe nearly exposed, or some larger portion accessible to the air of the house than that which communicates through the drain-pipe openings, which is not sufficient to give atmospheric heat in cold weather. Some little contrivance will, however, enable this to be done even yet—by exposing a little more pipe for top heat, especially in winter when a dry heat or warmth is more sought after than bottom heat. But the variation of heat, if it does not arise from the careless management of the fire, will sometimes be caused by the carelessness of those who made the joints of the pipes stuffing some of the packing material into the pipe, causing a lump and obstruction, checking very much the onward progress of circulation, and subjecting it to entire cessation at times. The hot water may also flow in another direction instead of the one in question. We have more than once known such contrivances not properly supplied with water. Any one of these causes will be sufficient to account for the unsteadiness of the heat given off. The best way, without pulling anything down, is to make sure there is water enough in

and then try the fire carefully, and feel the pipes all their length: there ought to be very little difference to the touch; if there is, something must be wrong, and they must be examined. An air-vent in the pipes at the highest point is also necessary to insure steady regular working; and in laying the pipes they ought always to be a little on the incline to keep all the air at one place—*i.e.*, the highest. The brickbat foundation for the plunging-bed need not have been so deep, and we fear the fireclay pavement covering will be too thick. Half the quantity, or less than that, of brickbats and rather small blue slates laid over them would have done as a bed for the sawdust, as, by being small, there would be the more opening for the moisture to pass down through, and for the heat to come up. The quantity of sawdust will be sufficient, as 4 inches all over will do to plunge pots 7 inches high when put close together. If you have access into such a pit you will find slender glass coverings for portion of such bed very useful, and it will hasten the propagation of everything underneath very much. The other portion of the pit might do for things more easily grown; but all parts of it will do for propagating all kinds of bedding plants. For wintering stock of any kind it would be better to uncover more of the pipe to get a drier heat in the dark days; and moisture is generally given off in sufficient quantities by the wetted sawdust, and the slates being small, water will percolate down to the brickbat foundation, and be given off in vapour accordingly.]

VINES IN POTS BREAKING UNSEASONABLY.

I HAVE some Vines in pots that are breaking already, in spite of my keeping them dry. I have plunged them under a south wall, nailed horizontally, top-dressed, and watered them, intending as they advance in growth and the weather gets colder to place them either in a warm pit or forcing-house. Shall I be doing right, and do you think I shall do any good with them at so unusual a season? They ought to produce fruit, and the kinds are—Sweetwater, Black Hamburgh, Black Prince, and West's St. Peter's, by name, but it is a white Grape, and is not that kind a black one?—VITIS.

[We hardly understand your case. Placing them against a south wall was a good place for perfecting their growth. As soon as that was done the plants should have been removed to the north side of a wall, and in very hot weather laid on their broad sides and covered with damp mats, &c., to keep them cool. If from the heat and dryness the main buds are actually breaking now, it will be no use to retard them, but the plants had better be placed where they will receive no sudden check from dryness or cold. They should be allowed to move on slowly, giving no artificial heat if the temperature reaches 55° to 60°, adding from 5° to 10° more when the bunches are in bloom. You may thus have fresh Grapes about the new year, instead of waiting till March and April for them. Did you prune your Vines when set against the south wall? West's St. Peter's is a black Grape.]

ROSES ON POSTS AND IN FESTOONS KILLED BY FROST.

I HAD an avenue of the above, but alas! last winter Jack Frost cut them all down to the ground, but he kindly spared their lives, and they have all pushed, but instead of throwing up four or five good strong shoots they have thrown up each a regular thicket of small shoots. I have tried various plans but want to obtain information from some more learned man, to enable me to restore as speedily as possible the beautiful festoons of Roses which used to adorn my garden. Ought I to thin away now all the shoots but *one*, or say *four*? or will it be best to head down now all but four, so that the strength of the plant may be thrown into the four? and should I in the winter cut down the four or the one shoot to within a foot of the ground, and allow them next year to grow as far as they like, as my object is to have the chains covered as soon as possible? Can I do it by allowing a strong single shoot to remain the full length of the pole, and by keeping it bare of side branches force it to break at the head only like a very long-legged standard Briar for budding?—W. X. W.

[As it happens your Roses had the very best treatment of any Roses in the three kingdoms this summer, and nineteen persons out of twenty would have given them the worst treatment, under

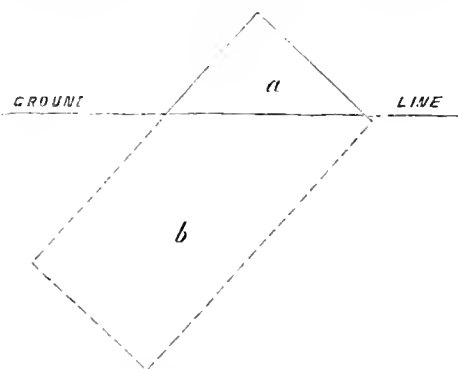
the impression that they, the nineteen, were doing that which ought to be done. Leave your Roses untouched till the second week of March next, then open the soil round the collar of each, and cut each just below the tuft of shoots which are now in leaf, and the eyes next lowest down on the shoulders of the main roots will push next spring exactly as did the cut-down stools last spring; but you must then assert your authority and your gardening and philosophic powers, and not let more than three or four shoots rise more than 6 inches the whole of next year. In the October of 1862 you may prune them again, leaving one shoot only—the longest and strongest—and all the rest should be cut down to the surface of the ground. The one you leave then to each plant will have to be cut back a little.

What about the *Asarum*? We have been promised the European kind which does on a dry bank but in the shade.]

EDGING MATERIALS FOR GARDEN WALKS AND FLOWER-BEDS.

It is somewhat to be regretted that the mechanical skill directed to various departments of gardening should not devote some attention to walk edgings, which certainly have not received the notice they deserve. It is true that live edgings of various kinds abound in great numbers, and every plant possessing a dwarf compact habit and easy growth may be applied to this purpose; but there are places where a live edging is not practicable, or, in fact, where it will not live. In such places some other edgings must be adopted, and it is to such places that I would call the attention of those having the means of furnishing an article at once durable, cheap, and suitable, and as neat as can be well made. To effect a useful invention in this way will be conferring a boon of considerable importance on the gardening world. And by way of explaining what is really wanted, it will be best to describe what already exists, and the defects of each, with their relative merits as well.

For many years I have been in the habit of using common kiln bricks as an edging to walks through dark shrubberies and similar places. These are laid in a diagonal position—one edge and one flat side presenting each an angle of 45° to view, or, in other words, they are laid with an angle edge upwards, thus—



a The corner of brick forming the edging.
b The buried portion of the brick.

and, being placed deep enough in the ground to allow only about 2 inches of the angular side of the brick to be seen, its appearance is pleasing, and it is not easily moved; even a wheelbarrow driven over it does no further damage than chipping the angles off a little, and sweeping and all the other ordinary work of cleaning a walk only improve its appearance; so that really little is required as regards durability. But a something more ornamental might, perhaps, be better for some places, and even this might, perhaps, be had at very little more expense than is now paid for ordinary bricks.

Another description of edging is one made of artificial stone, or rather cement. Some edgings of this kind have been in use here for many years, and are composed of slabs 6 inches wide and about 2 inches thick—the upper edge being rounded—and are generally laid to appear about 2 inches above ground, and their length being about 30 inches for straight work, with a sort of joint for fitting into each other. They are easily laid down, and hold together pretty well, yet not so steadily as the bricks before

described; besides which this edging is expensive where any great quantity has to be done. I can, however, vouch for its durability, as I have not perceived the least flaw in what we have of it, which has been laid some seven or eight years and exposed to all weathers. The maker has also other patterns; but the plain round-topped looks as well as any.

Many years ago the kitchen-garden walk edging at Eridge Castle, at the Earl of Abergavenny's, was laid with timber cut to a size somewhat like that of the cement edging described above; but, of course, in such a position just at the surface it soon decayed, and, I believe, has not been renewed: timber, therefore, cannot enter into competition with anything excepting for present use, and to meet a sudden emergency, or in isolated cases where other materials are not forthcoming.

Dressed stone is, perhaps, the best of all edgings where it can be had, and I have seen a kitchen garden done with it, and look exceedingly neat; but I fear its expense will prevent it coming generally into use, besides which it is only in places where stone is plentiful that it can be had, and only some description of stone is suitable. The flat slabs called Yorkshires paving are not fit for this work; for, being laid edgewise up, the moisture easily penetrates, and frost often shivers the stone—in fact, it is a general rule in building matters to lay each stone in the same position it was found in where durability is the object sought after. Dressed stone will, therefore, I fear, not come into general use, except in the localities where it is found.

A rough line of flints half imbedded into the ground and half out often serves as a useful edging in places where rustic work is appropriate, and even in dressed ground it is sometimes made to assume a conspicuous appearance by being painted white. As an example of this the names of the railway stations on many of the lines south of London present as true a feature as can well be given in this way, the letters forming the name being marked out on the sloping bank of black coal ashes or small coals, the flints themselves forming the letters being painted white, and each letter about 6 feet wide perhaps; but as this system of naming stations, which I believe originated on the South-eastern line, has become general in many other districts, I need say no more on this head than merely point out flints as being suitable in some instances of forming edgings in gardens, and have been so used long before railways for passenger purposes came into use. Painting them white is, however, not always done, and some people of good taste dislike the glare it presents.

Useful in a similar way, and certainly much more ornamental as requiring no painting or colouring, are the rough pieces of spar or quartz found in mining districts; the clear glitter its angular sides present to the sun renders it highly ornamental. Unfortunately, however, it is not to be had in sufficient quantity to meet other than a local demand; and I have only seen it in use in Cumberland and Derbyshire, but believe it to be plentiful in Cornwall and elsewhere, but I have not seen it used there. A most excellent and ornamental walk is often made of the same material in a broken state; and, if my memory be right, those at Trentham, and some, but not all, at Chatsworth were also of this kind.

Fancy designs in brickwork or rough earthenware are common enough; and though some look tolerably well, the bulk of those I have seen are in my opinion exceedingly ugly—a clumsy attempt to represent basketwork, perhaps; or some pattern of gable enrichment; or, it might be, some whimsical design of the owner contriving a something which no ordinary ingenuity could keep in order, and, leaning inwards and outwards, offend the eye as much by the bad setting as by the foolish pattern, proving that high edgings in this way are very unsuitable. By far the best design I ever saw in this way was a rounded bead representing a rope of about 2 inches in diameter; but unfortunately the foundation of this rope was not sufficiently bulky to support it in a uniform line, and it was difficult to keep in a correct line; but this defect might easily be overcome by appending this rope or cable to something like the consistency of a brick, and then it would stand. The lengths ought also to be not less than 2 feet, if they could be made of this size; but I believe this cannot well be done with accuracy with such a common material as brick clay, but I throw the hint out for those having the means to try what they can do. A sort of mortise-and-tenon joints ought also to be formed so as to fit into each other when laid down. Many years ago the late Mr. Loudon called attention to a description of edging-tile, made, I believe, at Aberdeen, exceedingly hard and durable; but I fear its expense or some other defect has prevented it being generally known, as it has

been lost sight of. Some other makers have at various times presented different articles in the same way for public patronage, but nothing has been yet issued that has received anything like general support.

To a limited extent I have seen a cast-iron edging of a fanciful pattern that looked tolerably well; but its expense must preclude its coming into anything like general use. A similar remark holds good in the matter of slate. Although in the districts where these abound I have no doubt but they can be had at a reasonable rate, and if not too slender must look well and answer every purpose. I have, however, little hope of seeing slate edgings generally adopted a hundred miles from where they are procured, though in particular cases they may be had and found to answer.

By the above it will be seen that I consider plain bricks the best and cheapest edging we yet possess for the generality of purposes where a live edging is either not available, or where it will not live; and some edgings of this kind that we have had down ten years and more look well still. The only likely thing to move them when placed in a shrubbery is the roots of trees or shrubs getting under them and lifting them up. This force no description of edging could resist, and bricks are easily relaid again. Moss will collect on them, but must be scraped off; and the mere fact of the brick becoming dull is an advantage, as a bright glaring red is not wanted, and betrays the article used. For convenience our kitchen-garden walks are also laid with bricks in the manner described, and they have the advantage of allowing a something to be planted inside them as well; and some compact-growing plant, as *Arabis variegata*, makes an excellent edging to grow against this line of brickwork. And being taken up in autumn to plant in flower-beds, then denuded of their summer occupants, the bricks remain a still permanent and useful edging ready to allow another crop next year to partly overshadow them, or to answer the purpose of an edging without such help.

The uses of a plain brick edging are far from being told yet, for in the geometric garden or parterre it is equally serviceable. Here, however, it is not put forth in such a conspicuous way, but made to act in a more subordinate capacity as follows:—Edgings of turf are well known to become jagged and uneven in spite of every care in clipping the fringe of grass that overhangs the edge; and to cut these afresh with the spade, commonly used for that purpose, every time they become so uneven cannot well be done, especially in dry weather: hence the propriety of having an edging that requires no such cutting. With this view I have, therefore, had some edgings laid down exactly in the manner described with brick, and turf laid level with the top edge of the brick or a little (perhaps half an inch) above it, the object being to get out of the way of the scythe, and at the same time have the slanting side of the brick as an edging to the walk or flower-bed. Compartments of turf so edged cannot be otherwise than correctly clipped in an even manner, and the brick is scarcely seen. If time and other things allowed, I should like to see every walk and flower-bed so treated, and nothing can well look better and be more permanent, it being no easy matter to damage an edge so formed. And assuming weeds to be troublesome on the walk, salt or any other chemical substance might be used to destroy them, without there being any danger of injuring the edging, which is too often the case when no such protection as a brick exists.

In advocating the brick laid in a diagonal direction as the best and cheapest edging where Box, Thrift, and other live edgings are not available, I by no means assert it to be the best that can be adopted; on the other hand, I invite mechanical men to turn their attention to the requirements of the case, and give us something better than we yet possess. And for my own part I am strongly impressed with the belief that something of a cable pattern, having a good sturdy foundation, to be the best that I have seen. A fancy moulding rarely looks so well on a large scale as some simple design, that I do not dislike the plain rounded top; but something more becoming than anything we yet possess will doubtless be forthcoming ere long. One thing must be insisted on—that is, cheapness; for expensive objects are out of the reach of the many, and when much edging is required it will amount to a large sum. Another thing must also be borne in mind—that although long lengths are suitable for straight and continuous bordering, short lengths will be wanted to go round curves and other places. In this respect we have found bricks come in very handy; for by being broken in two and placed with their ends up, a sharp curve may be turned pretty well.

Since writing the above, a work by the Messrs. Major, of Leeds, called "The Ladies' Assistant on the Formation of the Flower Garden," has been put into my hands; and amongst many varied designs for geometrical gardens are some designs for edgings as well, one being of wire. Somehow I never regarded a wire frame in any other light than as an adjunct to an edging, and consequently did not mention it in the list of other articles; and I think Messrs. Major must hold a similar opinion, as they say a plate of iron or zinc ought to go in the inside of the wirework to keep the dirt in. They also give some patterns of earthenware and one of cast-iron, but I cannot say that I admire them. Something more simple would, I am persuaded, look better. The designs for gardens are, however, varied and good, and these I will take the liberty of mentioning again. Suffice it to say that the subject of garden edgings has not yet received all the attention it requires, and they may certainly be improved.—J. ROBSON.

TRICOLOURED-ZONED GERANIUMS.

In a report of a meeting of the Floral Committee of the Royal Horticultural Society held on August 27th, your correspondent "D., Deal," in speaking of the new tricolor-zoned Geraniums, says, "They are very pretty, but they hardly keep their character out of doors. . . . Wherever they can have a little protection, they are very showy and beautiful."

Now, I consider that this is quite calculated to mislead the growers of these Geraniums; and is, moreover, so entirely at variance with my experience in the matter that I cannot help thinking that "D." has never grown them out of doors, nor seen them so grown.

It is only in the open air fully exposed to the sun and rain, &c., that they attain anything like their greatest brilliancy, and everything in the shape of protection diminishes the same in a corresponding ratio. This is a fact which does not appear to be generally known; but any of your readers may convince themselves of its correctness by turning a plant of the very varieties which "D." names into the open border, keeping another plant of the same variety under protection, and at the end of the present month report to you as to which plant is the more brilliant.—Z.

THE BEDDING-OUT AT THE CRYSTAL PALACE.

AFTER the festooned *Cissus discolor* in the Victoria Lily-house at Kew the next prettiest effort in gardening in the kingdom, as far as I can hear, is the long line of ribbon-like-planted beds across the bottom of the grand terrace at the Crystal Palace.

I think there are twenty-two oblong beds in the stretch and straight line: their length about 18 feet, and the width, of course, one-third of the length, or 6 feet across; and there are as many circular beds with an extra couple to spare—one between each pair of oblongs, and of the same width. Nothing that has ever yet been done in garden decoration with flowers was ever more telling, or, indeed, one-half so effective as this simple plan and contrast with only three kinds of flowers—two Geraniums and one Verbena. If you could get the councils of horticultural societies to see the effect of this judicious selection of the fewest things one could use for any effect, perhaps some of them would offer prizes for the best effect from cut flowers at their exhibitions; then there would be something worth going to see at their shows of such flowers.

I shall take this opportunity and the privilege of a public writer to recommend the subject to the Rev. Reynolds Hole—the gentleman who originated the Rose shows and brought them on so far with great credit to all concerned.

We have learned absolutely nothing yet in the way of effective decoration from all the Dahlias, and all the Roses, and all the cut flowers which have been exhibited in England for the last forty years; while Mr. Gordon, the youngest of us all, has in one season done more that way with his disposition of three kinds of plants than the whole of us put together. But you need not believe one word of this: go to the Crystal Palace, and I shall be ready to hear all that you can say for or against my say—and pray just look at the first corner or v-bed opposite the railway entrance, and say if you ever saw such another bed of Scarlet Geraniums in all your travels. But I have seen better beds of Punch than that one.

Look again at the top of that side walk for the match pair of gem beds of which I spoke the day they were planted, and see how they tally with my tale. Again, just look on the large bed of Yellow *Calceolarias* on the north side of the Rose Mount, right opposite the centre front of the great transept, and say if ever you saw such another bed with such kinds of plants, the bulk of them being of Gaines' Yellow *Calceolaria*, which is, or seems to be, by far the best bedding Yellow *Calceolaria* that ever was tried. It is a seedling of *Rugosa*, or of one generation from it. If the plant was out of bloom a botanist could not tell it from *Rugosa* itself. I never saw any *Calceolaria* nearly so good. They obtained it from Mr. Gibson, of Battersea Park Gardens; and, of course, Mr. Gaines, of Battersea, knows more about it, and his own real name for it.

When you reach the main terrace, just look down on each side of the way to the water temples, and let us hear your notions of these two lines of beds; then turn round and see the grand sight of the place, the said line of twenty-two beds, all in three kinds of plants—two Geraniums and one Verbena as I have just said. The Crystal Palace Scarlet all along the centre of all the beds in one straight line, Christina on each side of it, and Purple King Verbena on each side of Christina. The fact is this: Mr. Kinghorn ought to have had a gold medal struck on purpose for himself for raising Christina, and the medal ought to have been as wide as the shield of Achilles, and he should hang it at the shop door at East Sheen, Richmond.

The Geranium Attraction which did so well at the Crystal Palace in 1859 failed in 1860, and again this season, and they will never try it again. The Geraniums in the chain patterns have got the better of the *Calceolarias* within their circles, and it would be no discredit to England if they, or any one else, would never plant another Scarlet Geranium by the side and in contrast to yellow of any sort. When I was a first fiddler no such thing was ever allowed by the highest artists.—D. BRATON.

VEGETABLE PHENOMENA.

A FEW days since I purchased two fine large Lemons at a grocer's shop in Hounslow, for medicinal purposes. When on cutting one of them open longitudinally, I was surprised to find that four of the pips or seeds had germinated, the radicle of the largest consisting of two strong fibres about an inch long, the plume or stem measuring $1\frac{1}{4}$ inch, and of a bright green colour; The two parts (including the pip, about midway) extending in nearly a straight line along the fruit; the other three being deflected in the shape of a fish-hook. I believe it is nothing uncommon, although to the writer equally unaccountable to find a small Orange within a larger one, the outer integument of the former being precisely of the same colour as the latter. The writer would be glad to know if what he has noticed is of as rare occurrence as he presumes it to be.—A. K.

[It is not uncommon for seeds to vegetate in the seed-vessel, and the Lemon fruit is only the seed-vessel of the Lemon tree. We have frequently seen the seeds of the Orange germinate similarly in their surrounding pulp. Peas often germinate in the pod. It is a much more rare occurrence for a perfect Orange to be found within another as you describe.—EDS. J. OF H.]

DO ROOTS ESCAPING FROM POTS

INTO THE BORDER DISQUALIFY THE PLANTS AS POT PLANTS?

I EXHIBITED on Thursday last three Grape Vines in pots at the Workop Show. They were very superior to any exhibited, and averaged thirteen bunches each. To my surprise, on entering the tent after the Judges had given their decision, I found a card containing these words placed on my Vines:—"Disqualified, grown in open border."

Now, I have scores of witnesses who could prove they were grown in pots and never plunged, although they had partly rooted from the bottom hole into some old tan they stood on, which would be impossible to prevent unless they were turned and twisted daily. These Vines were taken to Workop and back in an open van, remained there all night in a crowded tent, and they are at this time fresh and good and still fit to be exhibited again.

I had a large trellis made to fix the Vines and bunches to

carry them safe, and had also a large forked iron placed in the pots to steady them. This caused me in order to balance the pots to drop them into larger ones. I then filled the cavity with moss and water to keep them from drying, knowing they had to remain until the second day. I believe I have stated all particulars. The schedule states only these words—"For the best three Vines in pots."

Mine were the best. Can they withhold the prize from me on the grounds stated above in their card of disqualification?—E. BENNETT, *Otherton Hall, Workshop.*

[If the above communication contains all the facts, we think Mr. Bennett's Vines were unjustly disqualified. If the holes in the bottoms of the pots were unusually large, and the roots had passed through in large quantities, or one root extensively, then the disqualification was merited.—EDS. J. OF H.]

ROYAL HORTICULTURAL SOCIETY.

FRUIT COMMITTEE.—F. J. Graham, Esq., in the chair. At this Meeting prizes were offered for the best three dishes of Peaches, Nectarines, and Plums. Mr. Dwerrihouse, gardener to Lord Eversley, at Heckfield, sent Royal George, Noblesse, and Salway. The first was briskly flavoured, but not sweet; Noblesse was very rich and sugary, and remarkably highly coloured for that variety; while Salway was very flat in flavour, though large and remarkably handsome fruit. The merit of this variety is in its lateness; and from this exhibition it was evident that it does not do to force, but requires to be ripened gradually. This being the only collection exhibited, Mr. Dwerrihouse was awarded the First Prize of £1. Mr. Dwerrihouse also exhibited a dish of very fine *Violette Hâtive* Nectarines. There were no competitions for the Nectarines.

In Plums there were three competitors, of whom the most successful was Mr. Francis Dancer, Little Sutton, Turnham Green, who obtained the First Prize of £1. His collection consisted of Jefferson, Pond's Seedling, and Ponpart's Seedling. The Jeffersons were remarkably large and handsome, having a bronzy tinge, and most deliciously flavoured. Pond's Seedling were also large, but the flavour, though good for that variety, was only that of a cooking Plum. Ponpart's Seedling is the size of an Orleans, quite black and lined all over with bronzy tracings. The flavour is rich, and it appears to be a very desirable Plum. The Second Prize of 15s. was awarded to Mr. John Newton, East Lodge, Enfield Chase, for Jefferson, Red Magnum Bonum, and Coe's Golden Drop; and the Third Prize of 10s. to Mr. Henry Eyre, gardener to A. F. Slade, Esq., Chislehurst, for Green Gage, Jefferson, and Bleeker's Yellow Gage. The last is an American variety, about the size of a well-grown Green Gage, of an amber colour, but not particularly rich in flavour.

There was a very nice collection of Grapes exhibited from the garden at Chislewick, among which were Muscat Noir Hâtif, Hâtif de Jura, and Rouge de Rolle. These seemed all to be very much alike, and appeared to be the same as our old Early Black July. There was not the slightest trace of Muscat in the Muscat Noir Hâtif. Muscat Hamburgh was well exhibited, the bunches being of good size and very well set. The flavour was most excellent. Burchardt's Prince, grown in the Vine-pit in a pot, was very well developed. The bunch was large and long, and the berries as black as Sloes, while the flavour was that of the finest Black Hamburgh. The true *Esperione*, as exhibited, is a short bunch and not very well set, the stalk and pedicels very stout and warted, and the berries perfectly round. The skin is jet black and thick; and the flavour is good, and between the Black Hamburgh and Black Prince character.

A Seedling Grape of a remarkable character was received from Mr. William Melville, of Dalmeny Park, near Edinburgh; it was obtained by crossing Champion Hamburgh with the pollen of Canon Hall Muscat. The result is a Grape producing a very large bunch, with enormous roundish or rather oblate berries of a grizzly colour, having the flesh of the Mill Hill Hamburgh impregnated with a distinct flavour of the Muscat. The Grape had evidently been produced under some disadvantageous circumstances, and there is no doubt when well grown it will prove a very valuable acquisition.

Mr. Graham, of Cranford, also sent a Seedling Grape of the White Frontignan class, and in the way of Chasselas Musqué; but, as it was not quite ripe, Mr. Graham was recommended to bring it up at the next Meeting.

A fine, large, and well-set bunch of a Muscat Grape was received from John Ruck, Esq., Sutton Court, Surrey, under the name of Muscatel Jesus. This, in the opinion of the Committee, proved to be Muscat of Alexandria.

Mr. Drummond, gardener to J. J. Smith, Esq., Beechwood, exhibited a basket of very large berries of Mill Hill Hamburgh Grapes. They were beautifully covered with bloom; but, as they were not allowed to be tasted, the Committee could not give an opinion upon them.

Mr. F. Joyne, of Bourton, Berks, sent a shoot of a Vine bearing two bunches of Grapes, the produce of different crops: one was ripened in June and the other in September. From the condition in which these were exhibited, the Committee were of opinion that there was no advantage to be gained by this mode of culture; but that on the contrary the result, which is after all an unsatisfactory one, must be obtained at the expense of the vigour of the Vine. Mr. Busby also exhibited a shoot of the Golden Hamburgh grown under similar circumstances.

Mr. Rivers, of Sawbridgeworth, brought fruit of a Seedling Peach called Early Albert; it is of good size, of a pale, creamy white on the shaded side, and a lively crimson where exposed; the flesh is quite pale at the stone. The flavour was excellent. The same gentleman also exhibited good specimens of Crawford's Early, a large yellow-fleshed American Peach of excellent flavour, and another of the same race and origin called Bergens' Yellow, which is larger than the former, but was flatter in flavour. Princess Marie is of rich flavour, as is also Grosse Mignonne Tardive, a variety a fortnight later than the old Grosse Mignonne.

Mr. Rivers' greatest triumph is the production of a Seedling Nectarine, which has all the merits of the Stanwick, and none of its defects. It was raised from the *Violette Hâtive*, impregnated by Stanwick. The fruit has all the appearance and richness of flavour of its male parent; but with the deep stain of red in the flesh where it surrounds the stone like the female. It is a month earlier than the Stanwick, and a fortnight later than the *Violette Hâtive*. Perhaps the most remarkable feature in the whole is, that the fruit being altogether that of the Stanwick, the kernel is bitter, showing how very decided the cross has been. Here, then, is a bitter-kernelled Stanwick, for both the leaves and flowers as well as the fruit are Stanwick. It is called the Victoria Nectarine, and it was awarded a First-class Certificate.

Mr. Rivers also exhibited another Seedling Nectarine called Pine Apple, which was not quite ripe; and another from the New White, which was very rich in flavour.

George F. Wilson, Esq., of Gishurst Cottage, Weybridge, sent a dish of magnificent Louise Bonne of Jersey Pears, among the largest we have ever seen of that variety. They were grown in pots in an orchard-house, but moved out of doors during the summer months, where they were brought to the excellent condition in which they were exhibited. The flesh was very tender, melting, and juicy, and the flavour delicious. Mr. Wilson also exhibited a large specimen of Melon Apple.

A Seedling Apple called Jedburgh Abbey, was received from Mr. William Deans, Nurseryman, Jedburgh, N.B. It is of medium size, conical shape, and with a smooth, yellow skin. The flesh is briskly flavoured and tender. It is said to be a very regular and abundant bearer. The opinion of the Committee was that this might be considered a good summer kitchen Apple; and from its tender flesh and agreeable brisk flavour would be valuable for apple jelly, the Keswick Codlin being the variety which is now most used for that purpose.

Mr. Newton, of East Lodge, Enfield Chase, exhibited specimens of Devonshire Quarrendon, Kerry Pippin, and Yellow Ingestrie.

WHAT TO LOOK FOR ON THE SEASHORE.

(Continued from page 138.)

CIRRHOPODA—(continued).

CIRRHOPODA.

THE Cirrhopoda, so-called from two Greek words signifying "a tendril" and "a foot," are a class of marine invertebrate animals provided with numerous articulated cirri, or ciliated arms, and having their bodies fixed in a multivalve shell. They are divided into two families—viz., *Lepadidæ* or *Barnacles*, and *Balanidæ* or *Sea Acorns*.

The Cirrhopods have been referred both to the Molluscs and

to the Crustaceans, and they seem to have certain peculiar distinctions of structure and development which render it a matter of some doubt to which order they really should be allotted. The matter has been disputed, and the question argued with much energy and ability on both sides by English and foreign naturalists, and the result is the general admission that they are true Crustaceans. Mr. Thompson, in his "Zoological Researches," affirms it in the most confident manner, adding that "in the first state of these animals they not only possess perfect freedom and power of motion, but organs of sight also;" and the fact of their claim to incorporation with the Crustacean family having the sanction of so high an authority as Professor Owen, should go far to establish that claim, and set the disputed question at rest for the future.

LEPATIDÆ.

THE COMMON BARNACLE (*Lepas anatifera*).—It retains its name *anatifera* (goose-bearing), although the absurd error from which it derived it has long been exploded. As a curious instance of the ridiculous fancies prevalent amongst our grave forefathers, and the marvellous stories they were willing to receive as sober truths, we will give a literal extract from the gigantic folio of old John Gerard, the Cheshire Botanist, entitled "The Herball, or Historie of Plants," and which met with implicit faith at the hands of the enlightened public of the sixteenth and seventeenth centuries:—"There is found in the north parts of Scotland, and in the islands adjacent, called Orchades, certain trees whereon do grow certain shells tending to russet, wherein are contained little living creatures, which shells in time of maturitie do open, and out of them grow those little living things, which, falling into the water, do become fowles, which we call Barnacles. In the north of England brant Geese, and in Lancashire true Geese; but the other that do fall upon the land perish, and come to nothing. Thus much for the writings of others, and also from the mouths of people of these parts, which may very well accord with truth. But what our eyes have seen and hands have touched we shall declare. There is a small island in Lancashire,

called the Pile of Foulders, wherein are found broken pieces of old and bruised ships, some whereof have been cast thither by shipwrecke; and, also, the trunks and bodies with the branches of old and rotten trees cast up there likewise, whereon is found a certain spume or froth that in breedeth into certain shells, in shape like those of the Muskle, but sharper pointed, and of a whitish colour, wherein is contained a thing in form like a lace of silke, finely woven as it were together, of a whitish colour, one end whereof is fastened into the inside of the shell, even as the fish of oysters and muskles are; the other end is made fast into the belly of a rude mass or lump, which in time cometh to the shape and forme of a bird. When it is perfectly formed the shell gapeth open, and the first thing that appeareth is the forehead lace or string; next come the legs of the bird and hanging out, and as it groweth greater it openeth the shell by degrees, till at length it is all come forth, and hangeth out by the bill; in short space after it cometh to full maturitie, and falleth into the sea, where it gathereth feathers and groweth to a fowl bigger than a mallard, and lesser than a goose, having blacke legs, bill or beake, and feathers black and white, spotted in such a manner as a magpie; called in some places a Pie-annet, which the people of Lancashire call by no other name than a Tree-geese, which place, aforesaid, and those parts adjoining, do so much abound

therewith, that one of the best is bought for threepence. For the truth hereof, if any doubt, let them repaire unto me, and I shall satisfie them by the testimonie of good witnesses."—(*Herball*, p. 1587.)

The Barnacles are attached to their resting-place by means of a long, powerful, and flexible peduncle, or stalk, generally of a scarlet or orange colour. The shell is compressed and is composed of five plates, two on each side and one elongated piece at the back. All these are delicately striated. The cirrhi spoken of, and which extrude laterally from the sort of mantle which lines the interior of the shell, are twelve in number, beset with bristles, and when covered with the water are in perpetual motion searching for prey. The stalk itself is of different lengths, from an inch to a foot, varying in different species, and even in the same species, dependant on the situation the creature occupies. It is mostly flattened, but occasionally of a perfect cylindric formation. It is lined within with layers of muscles, by which its oscillating movement is regulated. The intestinal canal is complete and furnished both with an oral and anal opening. In the early stage of the Barnacle it is furnished with eyes, limbs, and antennæ, and moves about with as much activity as any of the little inhabitants of the sea. It is only after a certain period of indulgence in a roving life that it reforms, and establishing itself permanently on a fixed spot becomes during the rest of its existence steady and immovable. The Barnacles attach themselves to rocks or other submarine objects, selecting in preference, however, floating houses; although they by no means disdain fixed habitations, affixing themselves indifferently to vessels, sea-weed, bottles, rocks, and timber, whether floating or stationary; and so rapid is their growth and accumulation, that ships on starting for a short voyage with a perfectly clean bottom have been known to return completely incrustated with them.

BALANIDÆ.

THE SEA ACORN (*Balanus balanoides*).—The Sea Acorn



differs from the Barnacle in this particular—it has no stalk or peduncle, but is affixed by its base to the object on which it takes up its residence. It has a conical multivalve shell composed of six segments, the upper opening being closed by a roof composed of four valves. This creature may be found constantly on the rocks by the seashore, and very frequently upon marine shells. One species, the *Tubicinella*, attaches itself to the back of the South-sea Whale, burying itself in its skin and fat. The Balanus is provided with arms or cirrhi similar to the Barnacle, and attaches itself to other objects in the same indiscriminate manner. Both the Sea Acorns and the Barnacles have the power of casting and renewing their coat. "In the Lepatidæ" says Darwin, "neither the valves nor the membranes uniting them, nor that forming the peduncle with its scales, are moulted, but the surface gradually disintegrates and is removed, perhaps sometimes in flakes, whilst new and larger layers are formed beneath. In most sessile Cirripedes" (sessile, sitting, or stationary, as the Sea Acorns), "the outside membrane connecting the cover and shell is regularly moulted, the delicate tunic lining the sac and the integuments of the whole body are periodically shed."

Our drawing represents *Balanus cambriacum*, it being larger and distinct than *B. balanoides*. The latter is very frequent in clusters upon oyster-shells.

Both the Barnacles and Sea Acorns are bisexual.

There are other species of Cirrhopods, but their characteristics are similar to those mentioned, and they may in all instances be referred either to one family or the other. As the Barnacles and Sea Acorns, therefore, are the only creatures likely to fall under the notice of those for whom these sketches are intended, it has not been considered advisable to extend this branch of the subject, more especially as the other Crustacean families will demand a more particular notice.—W.

(To be continued.)

THE FLORAL MAGAZINE.—We have received this month's Number of the "Floral Magazine," which is now conducted by the Rev. H. H. Dombrain, and the plates drawn by Mr. Andrews. The subjects are—*Rhododendron Climax*, *Auricula Smith's*

Lycurgus, *Rose* *Enfant Trouvé*, and *Double-flowered Petunia* inimitable. The plates are well drawn and brilliantly coloured, and the letter-press is readable and well written.

FURNISHING A GREENHOUSE.

THE dimensions are:—height, 10 feet; width, 8 feet 6 inches; length, 16 feet; fitted with Appleday's, of Chesterfield, hot-water apparatus. It is desirable to be as economical as possible in the furnishing with plants such as are easy of cultivation, as professional engagements leave little for time for others. —W. S.

[We hardly know how best to furnish such a house, as we know nothing of the internal arrangements, and that is everything as to the size and number of plants. The subjoined list are hardy and would give a good variety, and, we presume, would be cultivated in six-inch or seven-inch pots.

Acacia armata, *A. Drummondii*, and *A. grandis*, chiefly for spring.

Camellia japonica flore pleno, *C. Chandleri*, *C. Colvilli*, *C. elegans*, *C. fimbriata*, *C. Sweetii*, *C. rosea elegans*, and *C. tricolor*, from Christmas to May.

Epacris fulgens, *E. hyacinthiflora* candidissima, *E. miniata*, *E. grandiflora*, *E. campanulata* alba, and *E. tauntoniensis*, from February to May.

One dozen florists' *Pelargoniums*, and one dozen fancy ditto, May to August.

Half a dozen of *Azalea indica*, to bloom from March to June, as *A. indica* alba, *A. Broughtoni*, *A. lateritia* formosa, and *A. exquisita* prestantissima variegata.

From a dozen to two of *Fuchsias*, to come in along with and after the *Geraniums*; a dozen or a score of *Balsams* to come in along with the *Fuchsias*, room being made by the *Camellias* and *Azaleas* being in a shady place out of doors after July; a dozen of *Cinerarias* and the same number of *Calceolarias* in small pots, with a few annuals to fill up and make variety.

Many not having much time would devote such a house chiefly to *Camellias*, *Geraniums*, and *Fuchsias*, and except for the first the cost would be little. Keeping up a good show of bloom with *Scarlet Geraniums*, *Cinerarias*, *Calceolarias*, *Fuchsias* *Balsams*, &c.]

VINES UNFRUITFUL.

HAVING a vine in which I have had but a very poor crop of Grapes for some years, I am now thinking of making a new border this year, and pruning the Vines back to the front plate, so as to make them produce entirely new wood. The Vines are all *Black Hamburgs*, and all in a very healthy state. Do you think it will succeed to take the Vines up and make a new border? I thought of laying slate at the bottom to keep the roots from striking down, and putting a double row of three-inch drain-pipes at the front and back of the border, connecting cross drains with them. —VINES.

[If your Vines are in such a strong healthy state we should not think of cutting them down to the rafters, unless you absolutely fixed upon that plan. We think it very likely that after lifting the roots the Vines would not push so strong as you would expect when thus cut down, and the mere lifting would moderate luxuriance. If you could begin your work when the wood was rather brown and firm, and yet the leaves rather green, you would have a better chance of fruit the following year, and a fair healthy breaking too; and the longer you kept the foliage green by syringing and shading, the sooner would fresh roots be formed; and then, if even you cut down the Vines, we would not do so until midwinter, so that all the assistance possible could be given to form roots in the fresh soil, which the growth at the tops would assist, and which, with a little warm mulching, would continue to progress all winter. According to your plan you had better begin at one end of the border, and, keeping an opening, take up and plant as you go. With a bottom of slate, that bottom should be some 27 inches below the intended surface of the border, the front drain and the cross drain should all be below the level of the slate, and made sure where the slate joins the drain, that the roots may have little temptation to enter the drains: otherwise, your labour of slating the bottom will be of little avail. Then, over the slate bottom place 6 inches of open rubble, and then some turf or roughest of

the compost; take up the roots as carefully as mentioned the other week for *Peach* trees, wrapping them in damp mats or cloth and keeping them damp, and the tops inside syringed and shaded in bright sunshine, and the house close shut up. When a part is ready, spread out the roots carefully in layers, from 12 inches to 6 inches from the surface, and water with water at 80° as you go on, and take means to keep the border warm without making it too wet. Cover with litter or fern to keep the wet in. If a hot sunny day comes, uncover, but cover again at night. If the fruit is cut, the sooner this work is done in September and October the better; we prefer the first month to the second.]

A BOUQUET CRITICISED.

"R. E." would feel very much obliged by being informed whether the following arrangement of colour is against rule as regards harmony and contrast. The bouquet was one of eight which constituted a floral design, each bouquet consisting of two colours, with variegated *Geranium* leaves for edgings. The one in question and which has not been approved of on account of colour, was as follows:—A large violet *Aster* in the centre (colour of *Purple King Verbena*), encircled 2 inches wide with blooms of *Flower of the Day Geranium*, which colour is a light scarlet cerise, or yellowish shade of cerise. The edging was of the variegated leaves of *Flower of the Day Geranium*.

The idea "R. E." took from several of the oblong beds at Kew, which are planted with *Flower of the Day* in the centre and edged with *Purple King Verbeas*, and which "R. E." thought perfection for contrast.

[In reading "R. E.'s" query we were just about to exclaim primrose or white should have surrounded the purple *Aster*. We were amused then to find how that colour had been in effect the ruling one in the admired bed at Kew with the *Purple King Verbena*. It is seldom very safe in bouquets to use in this way separately the flowers and leaves which are beautiful in a bed. The colours of all plants seem harmonised in a peculiar manner, so that the green and flowers of each do best together. In the *Flower of the Day Geranium* the general tint is given rather by the leaves than the flowers, which are softened into the prevailing hue by the yellow shade of their pale cerise.

Separating these, the effect would be as a mass of any other red—inadmissible with purple, of which it forms a part. It is probable that in this case, if the flowers of *Flower of the Day Geranium* had been mixed in the wide band of its own foliage, the effect would more have approached that of the bed alluded to. This would not, probably, however, have suited the general design and the other bouquets; but pale yellow, white, or green are the only good contrasts to a purple flower.

The scarlet ring and the leaves used in edging were also faulty, neither harmonising as shades of the same colour nor contrasting vividly as altogether different. But this would generally pass, while the purple and red could not.—E.]

POMOLOGICAL GLEANINGS.

PERHAPS you will think the following scraps worth inserting in your "Pomological Gleanings:—

CHAMPION HAMBURG GRAPE.—We have here the *Champion Hamburg Grape* (obtained from Mr. Rivers) in fruit, and I cannot see any difference between it and the ordinary form of *Black Hamburg*.

SYRIAN GRAPE.—In your report of the meeting of the Fruit Committee, it is stated that the Vine sent by me to the Royal Horticultural Society's Garden, under the provincial name of *Syrian* (?) is not the *Syrian*. Is there such a Grape as the *Syrian*? I have seen the *White Nice* cultivated under that name, likewise the sort now in question, which appears to me to be identical with the Grape grown at *Trentham* under the name of *White Tokay*, and probably with the *White Portugal Grape* sold by grocers.

NEW BLACK GRAPE.—An unnamed *Black Grape* which was once exhibited at a meeting of the *Pomological Society* by Mr. Cooper, from the *Palace Garden, Armagh*, was thought by some of the members to be the *Black Morocco*. It is now in fruit here, and is totally distinct from the *Morocco*.

BELLE D'ORLEANS CHERRY.—The *Belle d'Orleans Cherry* (obtained from Mr. Rivers) is a valuable early variety, and ought to

be made known to fruit growers. It is a full-sized white Cherry, ripening quite as early as the Early Purple Guigne.

RIVERS' PLUMS.—Those who desire to have early dessert Plums should plant Rivers' Early Prolific and Early Favourite, which are the best very early kinds I am acquainted with.—J. B. WHITING, *The Deepdene*.

TIMBER FOR STOVE AND GREENHOUSE WORK.

JOHN STEVENS, at page 460, is quite right in calling attention to this important matter, and I hope to see the question answered by several practical men. My own views of the matter are in favour of the best Memel deal, and not by any means to have pitch Pine; the latter shrinks more than I ever expected, and most likely will swell again, and unless selected with great care, knots or places unduly charged with resin will cause much annoyance after-wards by its oozing out. Good, well-seasoned Memel Fir will last a long time. Oak may be introduced for sills if the builder wish it; but it is rather an obstinate article to deal with, and twists about very much; and if it has to be bought will come much dearer than deal, taking the extra carpentry into account, and when neat work is concerned, it is no easy matter to confine it to its place when the alternations of heat and moisture are acting on one side, and a bright drying sunshine on the other. But most of our hothouses here have oaken sills; and I once saw ainery with moveable lights all made of Oak, and it had been in working order, I was told, upwards of 110 years, and when I saw it it seemed to have been a stranger to the paint-pot for at least ten years, but it was strong and heavy, and likely to last many more years. Deal, however, is much lighter, works better, and is better in all respects; but there may be difference in the quality of deal, and the same kind receives different names in different localities, but most intelligent carpenters can tell which is good and which is not.

In framing any portion of the work together, care ought to be taken that no sappy part of the wood be worked in. This is the outside of the tree, and is not so good and often decays in ten years or less. The bottom ends of the lights are the parts that decay soonest, when the water runs over the timber across the grain of the wood. This piece ought always to be extra good. The shuteing ought also to be of good timber. I prefer a shute made out of a solid piece of square timber to one of metal. The latter always gets damaged at the joints, and will not bear ladders and other things leaning against it so well; but I shall be glad to have the opinion of others on this matter, or I may possibly return to it at another time. One thing I heartily agree with Mr. John Stevens in, not objecting to a little expense at first, for next to a very dear house, a very cheap one is a great evil; but some good practical hints from other quarters would be very acceptable.—J. ROBSON.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE season has been very favourable for operations under this head. Weeds may, with half the usual trouble, have been eradicated. Potatoes and other crops are coming off early, so that the operations of manuring and trenching may be carried on at every favourable opportunity. It is a mistake, to say the least of it, to dig the ground intended for general cropping simply one spit deep, even if the soil be shallow and the subsoil ungenial. The good effects of deep cultivation must have been perceptible to many this season. *Artichokes (Globe)*, cut off the tops as fast as the heads are used. *Carlyflowers*, prick out the young plants as soon as they are sufficiently large to plant properly; some may be pricked into a sheltered border and some into frames, and if some are potted singly in small pots they are easily kept in any place under glass through the winter. *Celery*, earth up when it has grown to some length; that which is not earthed up to have the soil stirred about it with a fork, and to receive frequent applications of liquid manure. *Lettuce*, prick some of the Cabbage varieties into a frame, to come in for winter use. Also, continue to plant out strong plants of the Brown Cos for winter use. *Onions*, a few of the Welsh sort sown now will come in useful where such things are in frequent request. Pull up those that have done growing, and house them in a dry state. To be sorted before they are stored away, and the thick-necked

ones used first. *Spinach*, thin the plants to about 9 inches apart; if obliged to step in amongst them in wet weather loosen up the soil after the thinning is completed. *Turnips*, thin as soon as they have made a second rough leaf. Should slugs attack them sprinkle hot lime over the ground two or three times a-week early in the morning or late in the evening. Remove all dead and decaying leaves from the Brassica tribe in general to some ground under the process of trenching, and keep the earth well stirred about them.

FLOWER GARDEN.

Herbaceous plants will require to have the stalks of decayed flowers removed, and Hollyhocks and Dahlias will still require occasional looking after to secure them against the effects of high winds, which may now be expected.

FRUIT GARDEN.

Look over wall trees, and cut off all foreright breastwood. Apples and Pears will require frequent attention to catch the favourable time for gathering, which must be as soon as they can be detached from the shoot without using force. Those intended for long keeping to be handled very carefully, to be carried in small quantities to the fruit-room, and to be laid upon the bare shelves. The plan of laying them in heaps to sweat, as it is called, will not answer for such as are required to be kept long, as it hastens the ripening process too much, and, as a consequence, decay will more speedily ensue. Old Strawberry-beds intended to be left another season to have the runners and rubbish cleared out of them, and to be well dressed with rich decomposed manure; but do not mow off the leaves.

STOVE.

Allamandas, Brugmansias, Clerodendrons, Erythinas, and plants of similar habits to be gradually reduced to a state of rest by a decrease of water at the roots and a drier atmosphere overhead. All stove plants which have been removed to the conservatory should now be got back to their permanent stations without delay. Give liberal ventilation, accompanying it with a high temperature, as the hardening of growth is not carried out by cold draughts.

GREENHOUSE AND CONSERVATORY.

All the more delicate greenhouse plants to be housed without further delay. Camellias, Chinese Azaleas, Acacias, and the other more hardy sorts may be allowed to remain a short time longer outside if the weather continues favourable. Achimenes, Gesneras, and Gloxinias, after they have done blooming, to be placed in a spare pit or frame near the glass, and to be supplied with water only to keep them from flagging, in order to get their roots properly ripened before they are stored away for the winter. Amaryllis and the different varieties of Japan Lilies require similar treatment; but the Lilies being more hardy may be ripened off as advised last week at the bottom of a south wall. Admit air day and night to all descriptions of greenhouse plants. The Persian and other Cyclamens to be examined, and repotted when necessary.

PITS AND FRAMES.

As the season is now advanced the propagation of all the more important bedding plants should be brought to a close as quickly as possible. Let Scarlet and other Geraniums struck in the ground be taken up and potted as soon as they are rooted; they will require a close frame for a week or two, when they should be placed on a dry bottom in the open air to harden them off before housing.

W. KEANE.

DOINGS OF THE LAST WEEK.

WATERING CELERY.

THE dry weather still continuing has been very trying. I have been informed that the metropolis was favoured with some hours' rain on the 6th; but we had not enough here to wet a robin's bill. However, on the night of the 8th we had a warm refreshing shower, which did a little more than lay the dust. During the scorching heat, as water was very limited, the most urgent cases only were attended to. Without mulching it was little use watering ordinary crops; and a mere watering for an inch or two on the surface was worse than labour thrown away, as it left the mass of the roots in dryness, and arrested the exhalation upwards of moisture from greater depths. Those who have partly earthed up their Celery, and have had equally dry weather, may satisfy themselves of the relativeness of these ideas

by just taking up a head and seeing what state the roots are in. We raised some for the table in the beginning of the month; and, though we heard of no complaints, we knew it must be deficient in crispness, though blanched enough from mere absence of moisture at the roots. Though showing no signs of distress at the top, the earth about the roots was so dry as to be easily shaken from them, so that the roots, if the right colour, might have passed for a no bad wig to grace a barber's pole. The earth was removed a little, 6 inches from the plant, so as to form a trench on each side. In this little trench holes were made, 6 inches apart, with a crowbar, and in these holes and the trench the water was poured copiously, and the operation had to be repeated twice before the water thoroughly moistened the roots. The plants raised afterwards were no better blanched than the others; but, instead of being limp and toughish, they were short, brittle, and crisp. A fortnight more of such weather, and no water admitted directly to the roots, and the Celery would not only be tough, but almost every head we should have expected to bolt up its flower-stem.

KITCHEN GARDEN.

Watered late Peas to keep them in bearing, stirring up the ground previously, and mulching afterwards. Removed Peas finished bearing profitably, turned up the ground and planted with Broccoli and other greens. Did the same with garden Beans, filling up every spare space, so that there may be plenty of eauce in winter and spring; and the late-planted often stands better than the strong luxuriant plants that even now cannot find elbow room. Planted out also a bed of Leeks, being unable to find ground before. These will be very serviceable; but to have them as stout as a good-sized man's arm, they ought to have been inserted in rich soil six weeks or two months ago. To the working man who can relish them no vegetable is more delicious, either in soups, or when large, cooked whole; it is then far superior to Sea-kale, and a dish that a prince might envy, especially if he can add a small nip of butter, salt, and pepper to flavour. Onions and Turnips for last crop are loath to come, have surface-watered and covered with net and branches to break the force of the sun's rays. Planted out good breadths of Cabbage Lettuces, Cos ditto, Endive, and some where it will be easy to give them a little protection. This is quite early enough for turning out good plants for the winter crop. Fraser's hardy plain-leaved Batavian is the hardiest Endive we have met with, and cabbages well even in the spring. It was mostly cut up last winter, but it stood well several seasons previously, and for getting it a round ball of white, crisp leaves in March and April, we had only to place a six-inch or eight-inch pot over a plant, and put a stone or a clod on the hole to exclude light, some six days or so before we wanted it to have it in great perfection. At an earlier period, a few leaves, a slate, or a board placed over the plants effected a similar blanching in a more ordinary way; but the salad did not look so elegant as when encased in a pot. Cleared the main crop of Onions, placing the bulbs in a shady, dry place until we get time to string them. Put a lot of stuff from the rubbish-heap and trenched it two spits deep for early Cabbages in spring, which will be planted in rows 2 feet apart and 16 inches in the row; the kind most preferred for that purpose being the Matchless. If the ground is poor when trenched up we fork a little rotten dung or leaf mould on the surface. Slugs must be looked to for some time. This will be our first. If the winter is mild we shall cut nice little Cabbages from the Coleworts.

CUCUMBERS.

Cleared away a piece of Gherkin and ridge Cucumbers, after having gathered them, to make way for Geranium and other cuttings. Fresh regulated those left under hand-lights, and stirred the surface of the soil, as fresh mulchings of short grass partly dried were introduced among them, and placed in large pots nice plants intended to bear in a pit where heat from hot water can be given. The pit, though 6 feet wide, has a place shut off for the Cucumber-roots about 2½ feet wide and 15 inches to 18 inches deep, which we find amply sufficient as room for the roots; but in the present case we have put them in pots for two reasons. First, because as we can only spare a small space of a pit now, we can move the pots so as to give the plants more room as they need it; and, secondly, because in winter the plants often bear more profusely in pots, than even in such a narrow pit as that referred to above, and it is easy to put a little hot leaves among the pots if deemed desirable. The plants are so secured to sticks fastened in the pot, that the plant and pot may

be moved without the plant being at all injured. I used to pay more attention to these things when Cucumbers were wanted regularly all the year round. With me now I find it would be useless expense, as few seem to care about touching them from December to March. It would be of little use attempting to sell them about London in these months, and where there is no demand it would be waste to incur the expense of securing a supply. In the country it is often different. Winter is the season for hospitality, and if Cucumbers are relished at that time, the proprietor should give his gardener a small house heated by hot water on purpose.

VEGETABLE MARROW.

I noticed that some people complained of their Custard Vegetable Marrow coming yellow instead of green. A few of mine did so, and at first it did not bear so well as the common Marrow; but the colour and the bearing have been all right of late. Where time is valuable and labour scarce, I find it quite as well to plant them in some sheltered out-of-the-way place, and let them run about pretty much as they like. The Custard when small looks well on the table; but though there was lately a furor about it and its superiority, I find in many families the old yellow is again becoming the favourite.

The heat being in good order in the second bed in the Mushroom-house, earthed up with 1½ inch of strong loam, allowed it to lie a few days, and then heat it as hard as possible, and then watered it, &c., when a little hazelled or drish on the surface, beat it with a clean spade, and drew it when wet firmly over it, so as to leave a smooth, glossy surface. Such a surface is always easiest kept clean afterwards. Placed Capsicums in a Vine-pit, where they would have a little help to ripen their fruit with the assistance of manure waterings, and thus enable us to have home-made cayenne. Gathered Tomatoes for sauce, which have been ripe long ago this season, leaving plenty to cut and come again. Why is it that so few eat them in the green state as salad as in America?

FRUIT GARDEN.

In the fruit garden, in addition to shortening shoots and removing the last vestiges of breastwood from Peaches, Apricots, Plums, Pears, &c., the chief thing has been to see that spring-fresh-planted trees are not suffering from want of water, and keeping up unrelenting warfare with the wasps, covering the openings in theinery with gauze, wrapping the heads of little fruit trees in gauze, and placing bits of gauze round fine fruit, and against the wall sticking a bit of wadding close to the stalk to catch Mr. Wasp and big fly by the legs, and send him off to other quarters. With all this care we get a fine fruit now and then holed and hived far more beautifully than we like. When fruit are grown in houses it is comparatively easy to keep all insects out, by covering the air-openings with thin gauze or even close woollen netting. Nipped the points of many Peach shoots to arrest growth, and throw more maturation into the fruit-buds, and got the ground about all fruit trees as clear as close cropping would allow, so that the sun may exert all its power on the ground, made rather firm on the surface to radiate the heat back again. As the second crop of Figs are now beginning to swell, thinned out a good number of the older leaves without doing much to the shoots (as these must be kept for the first crop), in order that the sun and air might play more freely on the shoots. The hot weather has brought on Melons sooner than expected; but it will be no great loss if there are few late ones, as it is seldom Melons are worth eating after the middle of October. Of course it is possible to make a Melon good at any time if at all soft, as the soup in which stones and butter were boiled together would be rather a rich affair in its way.

FLOWER GARDEN.

The flower garden has required unremitting attention to keep it nice. Calceolarias on account of the dryness require considerable picking, and more water than we can give them. Even Scarlet Geraniums require a little picking, though receiving no water as yet. Salvias where exposed are feeling the drought, and Hollyhocks and Dahlias are respectively calling out for rain, though the former are blooming well, and so are a quantity of the double Sunflower. Of this there seems several distinct varieties. We have had several strong plants that have produced one immense double flower, from 15 inches to 18 inches in diameter, and which are now a mass of seed, that might serve a turkey for a day. Another kind seems to throw out four or

five fair-sized double flowers at once, and others coming in succession; but for the flowers being two or three times the size, and not so lofty in growth, a person might take them for the old *Helianthus multiflorus*. In a rather wild part of the garden they certainly have produced rather a fine effect, with a row of Hollyhocks in their centre. I have said that no Geraniums have been watered; but I must except some of the variegated ones, and especially Pink Cup. Our friend Mr. Robson speaks of it being so beautiful on a bank; with me it seems to crave for a morass. The flowers this season hid all the leaves.

COREOPSIS TINCTORIA.

Some time ago I grumbled because some varieties of *Coreopsis tinctoria* did not bloom soon enough—such as *atro-sanguinea*, *marmorata*, &c. They have almost fully paid back for their delay. For three weeks the beds and rows have been a mass of bloom of almost every conceivable shade of yellow, crimson, purple, &c. Some of one colour, others of different colours, and how beautifully they looked with their almost unnoticed small foliage! The beds have an edging of *Saponaria calabrica* creeping up amongst them. I do not know if any beds have had more admirers. Some connoisseurs even inquired what splendid new plant it was. I like it all the better, because for an outlay of twopenny or threepence for seed, any cottager may beat me with such a bed next season.

The new *Dianthus Heddewigii* and *laciniata* have also done very well, and if last winter speaks true they promise to be as hardy as the common Pink. We have just commenced taking a few cuttings of the best-shaped, largest, and finest-coloured flowers. We have delayed our propagating of the commoner things, as we did not wish to disturb the outline of the beds, but now we will go on with everything except *Calceolarias*, and even now must be content with small cuttings of Geraniums, so as not to disfigure the beds. When a family leaves their country seat at or before this season of the year, it is very different to what it is when everything is wanted to be gay until the frost comes. These Geranium cuttings we will place thickly in wooden boxes, such as Mr. Robson described the other week; but ours are not so nice. We thus avoid the trouble of lifting again, and though not more than 2 inches or 3 inches now, they generally get big enough before spring. These short ones refer to Tom Thumb; Brilliant, and some stronger ones we make a little larger. We seek out for the small shoots coming from near the bottom, and which would do no good this season. We will now proceed with a fresh batch of *Heliotropes*, *Verbenas*, *Petunias*, &c., selecting small, stiff side shoots from $1\frac{1}{2}$ inch to 2 inches in length, and after removing most of the leaves except the end ones, draw small parcels of the cuttings through some weak tobacco water before inserting them. The cuttings of *Verbenas*, *Petunias*, &c., put in first are now well rooted, and get plenty of air to keep them hardy. It is a great chance if we shall be able to pot off many of them.—R. F.

TO CORRESPONDENTS.

** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed solely to *The Editors of the "Journal of Horticulture, &c.," 162, Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications.

We cannot reply privately to any communication unless under very special circumstances.

ACHIMENES DONE FLOWERING (*A Suffolk Subscriber*).—The size of the flower is good, showing that you have grown the plants well. As the plants get shabby give but little water, but do not let them be quite dry whilst there are any green leaves. In this state the sunnier the position you give them, the better will the little tubers mature. Leave them as they are until all the foliage is quite withered and the stems dried up, then cut them over to the surface of the pots. The roots will keep very well in the dry soil of the pots, kept dry in any place, where the temperature is not lower than 45°, but generally from that to 50°. If such a place is not sandy shake them out of the pots and pick out carefully all the tubers, without breaking them, and place them in paper bags, in sand, and place the bags in some place in the kitchen, or near the parlour fireplace, where that temperature will be sustained, and yet the tubers be not too much

dried. A drawer with a layer of wadding round the papers would keep them well.

HONEYSUCKLE FOR HOUSE FRONT (*A Subscriber, Dublin*).—The Japan Honeysuckle is best for the purpose. It is all but evergreen, and will bloom from May to October if you keep stopping the strongest shoots just as they do the Peach trees. There is not another Honeysuckle so appropriate for any side of a house in England, or any part of Ireland. We never yet saw an insect on it.

FUCHSIA WITH YELLOW LEAVES (*J. Witter*).—Our impression was that the yellowish tint of the leaves of your Fuchsia was against it. But no one can judge such things from a couple of leaves. Before we could pass a judgment on the plant for the purpose of edging in Golden Chain fashion, we should need to see a good full specimen plant of it in the height of summer. If we were in your place we would send a plant of it to the Royal Horticultural Society's Floral Committee's next meeting. Mr. Beaton is one of that Committee, and he would be sure to do you justice.

SCALE AND GREEN FLY ON WALL TREES (*A. L.*).—The wonder is, how the Apples and Apricots escaped under such circumstances. We are quite unable to point out the cause. We would advise pruning the trees early in autumn, collecting every bit of prunings and the loose bark scraped off and burning them, then wash the trees well, every bit of them, with strong soft soap water, at a temperature of 100°, going over them several times. Then, when the wood is dry, paint it all over with a paint made of two parts clay, one of lime, one of soot, and one of sulphur, in a cold state. Then remove from 4 inches to 6 inches of the surface soil within a yard of the bole of the tree and fill up afresh, and a little attention to syringing, &c. in the spring will, we hope, save you from such a casualty in future.

VARIEGATED ALYSSUM (*E. C.*).—Of your specimens, A is, and B is not, rightly named. A is the true and pure old-fashioned border annual called Sweet Alyssum in a variegated dress. But at the time the Sweet Alyssum produced this sport people did not know that sports differed from their parents, and some one made a botanical blunder by making the sport not only a new species, but also a false genus, and the false genus is *Koniga*. The name of the other variegated plant, B, is also Alyssum, the Alyssum saxatile, which makes the best yellow flower-beds in April and May. It is also a perennial. The Alyssum maritimum variegatum, or what we call variegated Alyssum, is an annual kept from cuttings, because it will not seed, and if it did produce seed the seedlings would be as green and useless as *Koniga* or *Cornigera*.

BOOK ON FLOWERS (*A Subscriber, City*).—You require a book for general reference, and you cannot have one more suited to your purpose than the "Cottage Gardeners' Dictionary." It is alphabetical, and you can have it free by post from our office for 5s. 8d.

SIR JOSEPH PAXTON'S PLANT-HOUSES (*Gloxinia*).—They answer very well. They are not blown away by a gale of wind.

WALL TREES FOR PROFIT (*Wellingborough*).—Though the wall has a south aspect you must not for profit grow Peaches and Nectarines. They are too uncertainly productive unless under glass. Plums and Pears would be most remunerative, if choice sorts were grown and well managed.

NAME OF TREE (*T. B. Mosley*).—The leaf you enclosed is one from the *Salisburia adiantifolia*, or Maiden-hair Tree. It is hardy, and does not require to be trained against your south-east wall. It is a native of Japan.

SIZE OF SUPPLY-PIPE (*A. C.*).—A pipe two inches in diameter well covered with sawdust or other non-conductor of heat, would be large enough to supply from the boiler hot water to the four-inch flow-pipe in yourinery though 20 yards from the boiler.

NEWLY-ERECTED ORCHARD-HOUSE (*A Constant Subscriber*).—The moisture emitted by the brickwork will not injure your plants either in winter or summer. Free ventilation is all that you will have to attend to. You may extend the flue round yourinery without any fear of injury from its damp brickwork.

PRESERVING MELONS (*Cucumis*).—Our correspondent wishes for the best mode of preserving Melons either whole or otherwise, and we shall be obliged by any of our readers sending us recipes.

MELON-HOUSE, AVOIDING CONSUMPTION OF DUNG.—"W. H. R." will be obliged by "W. H. R." saying how deep is his soil; how far are the plants from the glass; does he ventilate freely; and what temperatures are maintained. These questions are asked because in a similar structure "W. H. R.'s" Melon culture was a failure.

OUVERANDRA VENTRIS (*H. H. O.*).—You did not prepay the postage of your letter.

FRAME-LIGHTS (*H. A. W.*).—If you will consult our "Greenhouses for the Many," you will find there the cheapest mode of constructing a greenhouse. You can have that Manual from our office for seven postage stamps. Your Ferns are named to-day.

GLADIOLUS BULBS (*G.*).—They should be taken up as soon as the leaves turn yellow, or at the end of October whether yellow or not; be dried, stored, and replanted the first week in April, or sooner if they begin to vegetate. The bedding Gladioluses, however, need not be taken up at all, they only require to be covered over, 6 inches or 8 inches deep, with coal ashes to keep the frost from them.

CUTTINGS OF MANDEVILLA SEAVEOLENS—**SOWING VERBENA SLED** (*E. T.*).—In the spring, when the most moderate side shoots of *Mandevilla seaveolens* are from 2 inches to 3 inches long is the best time to propagate it, and these with firm heels to them are the best cuttings. Verbena seeds are best sown early in March, exactly like sowing Mignonette in pots, and the after-management is just the same till both are planted out in May. No bedding plants do so well with cuttings in sand and water as the Verbenas; but for curiosity many other plants would come that way in the spring. The Fuchsias next best after Verbenas, then all the little blue Lobelias. All the Weigelas come from cuttings of the young wood in the spring with exactly the same treatment as the Fuchsias; and, like the common Fuchsias, cuttings of the ripe wood of this summer will do to be put in at the end of October in the open ground, and if a hard frost should kill these Fuchsia cuttings or those of Weigela to the ground, the bottom buds of both will run up shoots and root next season.

MEDICAGO INTERTEXTA (*James Marshall*).—We never heard of *Medicago intertexta*, or Mount Calvary Clover, being used but as a border annual in the olden times, and that for the curious seed-pods. Please to tell us your

own experience of it, or your ideas more in detail. Koniga is a false name for the variegated Sweet Alyssum.

NAMES OF PLANTS (*H. II.*).—*Ononis nutrix*, var. *pinguis*. (*H. A. Walker*).—The small frond is *Lomaria alpina*. Its fertile fronds are similar in character, but contracted in the pinnæ. The larger is probably *Blechnum cartilagineum*, but is too young to determine. (*Eraser*).—1, *Rhus cotinus*; 2, *Salix helix*; 3, *Santolina chamaecyparissia*. (*A. Subscriber*).—1, *Campanula fragilis*, a pretty half-hardy or frame plant for pot culture; strikes from cuttings of young shoots from the roots or division, and grows in any well-drained sandy soil; good for baskets, or for standing on a cold greenhouse shelf. 2, *Zauschneria californica*. 3, Too much crushed for identification. 4, *Statice limonium*. (*S. Devon*).—1, *Argemone autumnalis*; 2, *Senecio cruceifolius*; 3, no leaf sent; 4, *Pulicaria dysenterica*. (*C. H.*)—1 and 5, *Athyrium filix-fœmina* rhatum; 2, *Cystopteris bulbifera*; 3, not sent; 4, *Athyrium filix-fœmina* trifidum; 6 and 8, not in fructification, and therefore not recognisable; 7, *Cystopteris fragilis*; 9, seedling form of *Athyrium filix-fœmina*. (*Blairmore*).—1, not *E. Massoni*, but some var. of *ampullacea*; 2, a *Diosma* or *Agathosma*, but we cannot say what species without flowers; 3, *Gnaphalium uliginosum*; 4, *Cystopteris fragilis* dentata; 5, *Cerastium*, but not in a condition for determination.

FLOWER SHOWS FOR 1861.

SEPTEMBER 18th and 19th. BRIGHTON AND SUSSEX. Sec., E. CARPENTER. NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) *Garden Superintendent*, G. Eyles.

NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

POULTRY, &c., SHOWS.

SEPTEMBER 20th. STAFFORDSHIRE (WOLVERHAMPTON). Sec., Mr. W. Tomkinson, High Street, Newcastle, Staffordshire. Entries close August 24th.

SEPTEMBER 24th. BRIDGNORTH. Sec., Mr. R. Taylor, Bridgnorth.

SEPTEMBER 26th. MIDDLETON. Sec., Mr. Thomas Mills.

OCTOBER 8th, 9th, and 10th. WORCESTER. Sec., Mr. J. Holland, Chestnut Walk. Entries close September 20th.

OCTOBER 23rd. CALNE. Secs., Messrs. F. Baily and A. Heath. Entries close October 9th.

NOVEMBER 5th and 6th. DEVIZES. Secs., Mr. Geo. Saunders Sainsbury, and Mr. John Long. Entries close October 8th.

NOVEMBER 21st, 22nd, and 23rd. GLASGOW. (Pigeon and Canary Bird Show.) Sec., Mr. Thos. Buchanan.

NOVEMBER 22nd, 28th, and 29th. DARLINGTON. Sec., Mr. J. Hodgson. Entries close November 11th.

DECEMBER 2nd, 3rd, 4th, and 5th. BIRMINGHAM. Sec., Mr. J. B. Lythall, 14, Temple Street. Entries close November 1st.

DECEMBER 11th, 12th, 13th, and 14th. CRYSTAL PALACE WINTER SHOW. Sec., Mr. W. Houghton.

MORTALITY AND SICKNESS AT THE SHEFFIELD POULTRY SHOW.

THE facts as to the so-called "mortality" amongst birds at the Sheffield Show are that out of the large number of birds penned five were ill and two died. This is surely not matter for much astonishment when many of the birds exhibited had begun to moult!

If "SELIM" will come forward in his own name he shall have all the information to which he is entitled. Should he decline to do so, he will not be surprised that his honesty should be considered on a par with his veracity, and his anonymous misstatements unworthy of further notice.

Mr. Berwick's Dorking cock was sent back to him, and his letter in the *Field* to-day conveys the first intimation to me that it was not received.—W. H. DAWSON, *Secretary, Sheffield, September 7, 1861.*

[If only two died at the Show, yet more died subsequently. The Rev. Mr. Newton's whole pen of three died immediately upon their return. Our reporter informed us that one bird in each eleven or twelve pens was so ill at the time of the Show as to be disqualified.]

We shall be glad to have all the information that can be afforded on the subject; for we have only one object in view—the promotion of the interests of poultry exhibitors and poultry exhibitions.—EDS.]

It would certainly be more satisfactory to the exhibitors of poultry generally if the sickness and mortality of certain of the birds at the late Sheffield Show were more clearly accounted for. One of the hens in a pen of Silver-spangled Hamburgs sent

from here by Lady Julia Cornwallis came back in so sickly a condition that we hardly expected it to recover, its comb turning black, and remaining so for a long time. Ultimately, however, it did recover, and its sickness after so long a journey would not have attracted much attention had not so many exhibitors suffered in like manner or to a more serious extent. I hope, therefore, you may be able to throw some light on this mysterious affair; and if the reporting of the above case can in any way add to the testimony bearing on the matter you are at liberty to insert it.—J. ROBSON, *Linton Park, Kent.*

DEATH OF ANOTHER FOWL EXHIBITED AT SHEFFIELD.

SOME OF THE GAME FOWLS THERE.

MAY I ask the favour of a portion of your space to refer to some matters connected with poultry shows, which are now exciting attention? First, as respects the complaints, some of which have appeared in your valuable paper respecting the birds dying at the Sheffield Poultry Exhibition. I beg to state that I went to the Exhibition on the Monday, where I claimed the first-prize pen of Duckwings belonging to Mr. Robert Chase. They were quite healthy when I claimed them, but when they reached home the cockerel was very ill, and died immediately after; the pullets have also been very unhealthy ever since. I opened the cockerel and found one side of his liver quite black, the other side apparently quite healthy; the bottom of his windpipe was also discoloured. My case appears to be about the fifth. There have evidently been some very dishonourable acts committed.

Secondly, my object in going to the Sheffield Exhibition was to discover whether Mr. Thomas Challoner, the Judge, was in any way connected with the exhibiting of Capt. Hornby's Game fowls, and from the information I received I suspect he was. I was in company with Mr. Charles Challoner, and he told me that the first-prize cockerel he got from a person named Johnson, of Worksop: this was exhibited in Capt. Hornby's name, and from the manner he spoke of Capt. Hornby's Game birds, I was led to the impression that they belonged either to him or his brother, Mr. Thomas Challoner. I also examined some of the labels on Capt. Hornby's hampers, and found them directed to Worksop, I believe it to be Mr. Challoner's residence. I would not willingly do either Capt. Hornby or Mr. Challoner an injustice, but from what I saw there is an air of suspicion about the matter, which I think it is the duty of either Mr. Thomas Challoner or Capt. Hornby to endeavour to clear up. These suspicions prevented my exhibiting at Sheffield, and I do not intend to exhibit again where Mr. Thomas Challoner is Judge, until I hear a satisfactory explanation, which I expect will be supplied in your next paper.—F.

[Although signed by an initial only, this letter was accompanied by another stating the writer's address, and we therefore publish it with such explanations as we have obtained.]

We wrote to Capt. Hornby stating that there was much dissatisfaction expressed relative to his connection in some way with Mr. Challoner and the exhibiting of Game fowls, and asking if he would give any explanation. The following is his prompt reply:—

"Some four years ago, wishing to walk my Game fowls in the midland counties (on gravel, not on clay which we have here), I engaged Mr. Charles Challoner, a farmer residing at Keetly, near Worksop, to walk them for me.

"Since then I have shown Game sometimes from here (Knowsley), and sometimes from Keetly. I did show at Sheffield, and the birds from there were addressed back to Keetly. This has constantly been done. There has never been any concealment about it.

"The Judge is Mr. Thomas Challoner. I am now told he is related to Mr. Charles Challoner. They do not live in the same place, and I do not know Thomas Challoner. To the best of my belief I have never even seen or spoken to him. I believe him to be a fair and upright Judge, and I certainly have no reason to suppose I have received any partiality from him.

"The old Game cock (about the best in England) took second prize in the largest sweepstakes ever shown of 100 cocks, where Thomas Challoner was not Judge. He was beaten at Birmingham in 1860, where Challoner was the Judge, and took first prize at Liverpool the following month, where Mr. Challoner was not Judge. At Prescot he took first prize where Challoner

was not a Judge, and again at Sheffield where he was. But Mr. Thomas Challoner passed over at Sheffield two pens of Game which had taken prizes elsewhere with other Judges, and which I thought could not be beaten.

"The question only is, whether Mr. Challoner, the Judge, gave any unfair preference to my birds. I was at neither of the Shows, and cannot say, but those who were there *can* say whether the judgment was wrong.

"All I can say is, that I firmly believe in the honesty and impartiality of Mr. Thomas Challoner. I need hardly say I would not lend myself to anything wrong. For the truth of what I now tell you I give you my word.

"I am very sorry I am in any way the cause of Mr. Thomas Challoner's name being brought into discussion, though I do not doubt he can well defend himself. I regret these *anonymous* attacks on Judges. I know that my baskets were examined at Sheffield. They were addressed to Keatly Farm, Worksop. Surely if anything *was* supposed to be wrong an explanation might have been asked for in the Show. I would close my connection with Mr. Charles Challoner at once, but it might seem that either that there is truth in the charge, or that I have been driven into it."—W. W. HORNBY.

Now, we are quite sure that Capt. Hornby had no sinister intention when he sent his Game fowls out to walk at Mr. Charles Challoner's; but it is quite clear not only that such an arrangement is open to suspicion, but we know from other sources besides our correspondent "E.," that such suspicions are entertained. We advise Capt. Hornby, therefore, to withdraw his birds from Mr. Charles Challoner's farm; it is wise to avoid even the appearance of what is wrong, and no one who knows Capt. Hornby will suspect that he has done what is right for any other reason than that he thinks it is right.

We quite agree with Capt. Hornby in the opinion that Mr. Thomas Challoner is a fair and upright Judge; but we think that no Committee ought to put him in the invidious position of sole Judge of the Game classes. It is generally understood that Mr. Challoner knows the private marks of every large breeder of Game fowls in England, and this belief of his knowledge, of course, subjects him to the suspicion of bias. We are told that Game fowls sent for exhibition have usually a private mark; and if this is so, then we think it desirable to have a rule that all birds so marked shall be disqualified. Such marks may be needed for the cock-pit, but they are not needed for the exhibition-pen. We shall be glad to hear from our readers on this subject, for our object like their's is to save poultry exhibitions from any suspicion of unfairness.—EDS.]

MANCHESTER AND LIVERPOOL POULTRY EXHIBITION.

It is, very probably, well known to most of our friends that the Exhibition of domestic poultry just held at Ashton-under-Lyne forms a portion of the show of the Manchester and Liverpool Agricultural Society. This feature in their annual meetings has for a long series of years proved progressive, and one exciting no small proportion of public interest. The general management leaves but little room for improvement, but, on the contrary, evinces an amazing advancement on the appointments of only some few years back. It is evident the Society are well aware how popular the poultry has been in conjunction with their meetings, and certainly they have not shown any laggard hand in offering premiums of value sufficient to call into competition birds from almost every principal exhibitor in the kingdom. This liberality on their part, conjoined with weather the most favourable that could be desired, has caused the Meeting of 1861 to be the most important of any held since the first institution of this Exhibition in the year 1847. It is scarcely necessary to add, that the show-yard was literally filled throughout the whole time it remained open with sight-seers of every description, and the greatest order and good feeling prevailed, for the gratification was universal.

There is one point, however, that perchance another year might be open to amendment—viz., the perpetual thronging of visitors on the Judges during the arbitrations—a difficulty that only became more and more obvious as the grounds became more densely filled. A single policeman's unaided efforts, particularly where some score or two of eager lady visitors are concerned, affords but little benefit under such circumstances; and we feel confident, acting on the friendly hint now given, the

Committee will adopt some more stringent arrangement in this respect for coming years.

As to the poultry classes themselves, it is pretty obvious how excellent must have been the first-class *Grey Dorkings*, when the renowned yard of Capt. Hornby had to content itself with a third position. The first-prize birds of Mr. Tudman, of Whitchurch, Salop, were certainly very superior, and the pullets in the second-prize pen belonging to Mr. Dolby, of Grantham, were highly deserving of especial mention.

In *Spanish*, the first prize for birds of this season was easily won by Mr. S. H. Hyde, of Ashton, who also repeated his triumph by taking, likewise, the first and second premiums offered to this breed as local prizes. Mr. Martin's birds, of Claines, Worcester, were also decidedly good, but want time to bring them into first-rate condition. The third-prize birds of Mr. Redpath, of Edinburgh, were capital as to feather, even after so long a journey to the show-yard.

We must say the *Game* classes were not equal to our anticipations, from their prevalent lack of good feather, the moulting season evidently taking place some three weeks earlier than last year.

The great proportion of the *Hamburghs* stood well, and perhaps the Golden-spangled were the best of any. In the Silver-spangled *Hamburgh* class, for the local premiums, a most decided case of attempted imposition occurred, by painting white the ear-lobes of the male bird and one of the hens. We should not be doing our duty as public journalists did we not note down the number of the pen—1196, and also the name of the offender—viz., Mr. Joseph Saxon, of Keverlow, near Alt, Ashton-under-Lyne. Such trickeries are really disgraceful and improper, and we sincerely hope that some of our poultry societies will devise a means that will thoroughly and universally expose all parties, without respect of persons, who may in future be detected in such nefarious practices, fraught, as they must be, with actually predetermined injury to the honest and fair competitor.

Polands mustered strongly, and were very greatly in advance of the generality of our shows.

In *Bantams*, we were particularly pleased with some excellent specimens of White Booted ones.

Of *Goslings* there has rarely been a better exhibition, and the *Turkey* poult was equally creditable.

In *Aylesbury Ducks*, the two principal exhibitors of this excellent variety, whose names are everywhere "household words" in our poultry prize-lists, had a hard race for mastery; Mr. Fowler taking both first and second premiums, Mrs. Seamons securing a very closely-run third position, and also a high commendation. It struck us that this lady's birds were not in the tip-top condition she customarily attains when forwarding them for competition. Rouen Ducks were good, and the Grey Calls were perfect specimens. The Buenos Ayrean Ducks were also most commendable.

DORKINGS.—First, E. Tudman, Whitchurch, Salop. Second, W. Dolby, jun., Syston Old Hall, Grantham. Third, Capt. W. W. Hornby, Prescott. Highly Commended, Lady J. Cornwallis, Staplehurst. Commended, W. Dolby, jun.

SPANISH.—First, S. H. Hyde, Ashton-under-Lyne. Second, J. Martin, Mildenham Mill, Claines, Worcester. Third, Master A. Kidpath, Edinburgh. Highly Commended, S. H. Hyde. Commended, J. B. Redpath, Warrington, near Bristol.

GAME COCKS.—First, Capt. W. W. Hornby, Prescott. Second, A. Hampson, Bolton-le-Moors. Third, E. Archer, Yorkshire. Commended, J. Fletcher, Manchester.

GAME (Black-breasted Reds).—First, Capt. W. W. Hornby, Prescott. Second, J. Fletcher, Manchester. Third, H. Worrall, West Derby. Highly Commended, J. Holme, Prescott; J. Keable, Berks. Commended, J. Turner, Pilkington.

GAME (Brown-breasted Reds).—First, Capt. W. W. Hornby, Prescott. Second, J. Fletcher, Manchester. Third, T. Burgess, jun., Whitchurch, Salop. Highly Commended, H. Worrall, West Derby, near Liverpool.

GAME (Any other Variety).—First, J. Fletcher, Manchester. Second, T. Burgess, jun., Salop. Third, H. Worrall, West Derby. Highly Commended, J. Fletcher; R. Tate, Driffield.

COCHIN-CHINA (Cinnamon or Buff).—First, E. Musgrove, Aughton. Second, T. Stretch, Boole, Liverpool. Third, J. Robinson, Garsang. Highly Commended, H. Bates, Edgbaston, Birmingham; E. Smith, Manchester.

COCHIN-CHINA (Grouse and Partridge).—First, E. Tudman, Whitchurch, Salop. Second, E. Musgrove, Aughton. Third, T. Stretch, Liverpool. Highly Commended, E. Tudman.

HAMBERGHS (Golden-pencilled).—First, A. Nuttall, Manchester. Second, J. Munn, Manchester. Third, J. Dixon, Bradford. Highly Commended, T. Parkinson, Accrington; J. Munn.

HAMBERGHS (Silver-pencilled).—First, J. Martin, Claines, Worcester. Second, J. Munn, Manchester. Third, S. Shaw, Halifax. Highly Commended, C. Moore, Poulton-le-Fylde.

HAMBERGHS (Golden-spangled).—First, G. Brook, Haddersfield. Second and Third, S. H. Hyde, Ashton-under-Lyne. Highly Commended, J. Ashcroft, Ashton-under-Lyne.

HAMBERGHS (Silver-spangled).—First, J. Lancashire, Middleton. Second, J. Fielding, Rosedale. Third, T. Dale, Cheshire. Highly Commended, W. Jackson, Middleton. Commended, J. Fielding.

POLANDS (Any Variety).—First and Third, J. Dixon, North Park, Bradford. Second, T. P. Edwards, Lyndhurst, Hanis. Highly Commended, J. Dixon; Miss E. de Courcy Drevan, Rose Hill, Dublin. Commended Miss E. de Courcy Drevan.

BASTAMS (Game).—First, W. Silvester, Sheffield. Second, J. Camm, Farnfield, Notts. Third, T. H. D. Bayley, Biggleswade, Beds. Highly Commended, W. Lawrenson, Poulton-le-Fylde; E. Musgrove, Aughton. **BASTAMS (Any other Variety).**—First and Third, T. H. D. Bayley, Biggleswade, Beds. Second, E. Fielding, Rochdale. Commended, J. Dixon, Bradford.

ANY OTHER BREED.—First, R. Chase, Birmingham (White Cochins-China). Second, J. K. Fowler, Aylesbury (Brahma Pootras). Third, J. Ashcroft, Ashton-under-Lyne (Black Hamburgs). Highly Commended, R. Tebbay, Preston (Brahma Pootras); J. Dixon, Bradford (Malays). Commended, J. H. Craigie, Chigwell, Essex (Brahma Pootras).

GESE.—First, Capt. W. W. Hornby, Prescot. Second, Mrs. M. Seamons, Aylesbury (Grey and Mottled). Third, T. Burgess, jun., Whitechurch, Salop. Highly Commended, J. K. Fowler, Aylesbury (Go-lins).

DUCKS (Aylesbury).—First and Second, J. K. Fowler, Aylesbury. Third, Mrs. M. Seamons, Aylesbury. Highly Commended, J. Dixon, Bradford; Mrs. M. Seamons.

DUCKS (Rouen).—First, R. Tate, Driffield. Second and Third, J. Holme, Prescot. Highly Commended, J. Dixon, Bradford.

ANY OTHER BREED.—First, T. H. D. Bayley, Biggleswade, Beds (Call Ducks). Second, J. Dixon, Bradford (Grey Call). Third, G. S. Sainsbury, Devizes (Black East Indian). Highly Commended, G. S. Sainsbury (Black East Indian).

TURKEYS.—First, E. Guy, jun., Grantham (Cambridge). Second, Capt. W. W. Hornby, Prescot. Third, J. Dixon, Bradford.

LOCAL PRIZES.

DORKINGS.—First, S. H. Hyde, Ashton-under-Lyne. Second, R. Lees, Ashton-under-Lyne. Third, J. F. Weaver, Ashton-under-Lyne.

SPANISH.—First and Second, S. H. Hyde, Ashton-under-Lyne. Third, J. Potter, Openshaw.

GAME.—First, J. Ashcroft, Ashton-under-Lyne. Second, G. Lees, Ashton-under-Lyne. Third, withheld.

COCHIN-CHINA.—First, E. Whittaker, Hurst, Ashton-under-Lyne. Second, H. N. Harrop, Ashton-under-Lyne. Third, withheld.

HAMBURGH (Golden-pencilled).—First, J. Ashcroft, Waterloo, Ashton-under-Lyne. Second, S. H. Hyde, Taunton Hall, Ashton-under-Lyne. Third, J. Hilton, George Street, Ashton-under-Lyne.

HAMBURGH (Silver-pencilled).—First, R. Lees, Ashton-under-Lyne. Second, J. Ashcroft, Waterloo, Ashton-under-Lyne. Third, J. Hilton, George Street, Ashton-under-Lyne.

HAMBURGH (Golden-spangled).—First, S. H. Hyde, Taunton Hall, Ashton-under-Lyne. Second, J. Ashcroft, Waterloo, Ashton-under-Lyne. Third, W. Travis, Little Moss, Ashton-under-Lyne.

HAMBURGH (Silver-spangled).—First, N. Marlor, Denton, near Manchester. Second, J. Ashcroft, Waterloo, Ashton-under-Lyne. Third, S. H. Hyde, Taunton Hall, Ashton-under-Lyne. J. Saxon, Keverlow, near Alt, Ashton-under-Lyne; disqualified, painted on earlobe.

BASTAMS.—First, E. Whittaker, Hurst, Ashton-under-Lyne. Second, S. H. Hyde, Taunton Hall, Ashton-under-Lyne. Third, S. Street, Old Cross, Ashton-under-Lyne.

ANY OTHER BREED.—First, J. Ashcroft, Waterloo, Ashton-under-Lyne (Black Hamburg). Second, H. Heap, Henry Square, Ashton-under-Lyne (Silver Polish). Third, Z. Tetlow, Fildsworth (Black Polish). Highly Commended, J. Hilton, George Street, Ashton-under-Lyne (Black Hamburg); H. N. Harrop, Audenshaw, Ashton-under-Lyne (Black Poland).

GESE.—First, J. Whittaker, jun., Hurst, near Ashton-under-Lyne. Second, Mrs. N. Marlor, Denton, Ashton-under-Lyne. Third, J. Lingard, Old Street, Ashton-under-Lyne.

DUCKS.—First, S. H. Hyde, Taunton Hall, Ashton-under-Lyne (Aylesbury). Second, G. Davies, Crowtherne, Ashton-under-Lyne (White call Ducks). Third, J. Lingard, Old Street, Ashton-under-Lyne (Aylesbury).

The officiating Judges were, Mr. Edward Hewitt, of Sparkbrook, Birmingham, and Mr. Thomas Challoner, of Burnt Leys, Whitwell, near Chesterfield.

BRETTON-WEST POULTRY SHOW.

THIS, the twenty-second annual Exhibition of the Agricultural Society, took place on the 5th inst. The entries were few, but the quality of the fowls generally good.

The Judges were, Mr. Thompson, and Mr. M. Ridgway, both of Dewsbury. The following were their awards:—

COCHIN-CHINA.—First and Second, W. Dawson, Hopton Mirfield. *Chickens.*—First, W. Dawson. Second, S. Pickard, Dintear House, Wakefield. Highly Commended, S. Pickard.

SPANISH.—First, T. B. Stead, Leeds. Second, J. Dixon, Bradford. *Chickens.*—First and Second, G. Robshaw, Dewsbury. Commended, J. Dixon.

DORKING.—First, S. Pickard, Wakefield. Second, H. Himsworth, Lupset Hall. *Chickens.*—First, H. Himsworth. Second, T. B. Stead, Leeds.

HAMBURGH (Golden-spangled).—First, J. Dixon, Bradford. Second, H. Carter, Holmfirth. *Chickens.*—First, H. Carter. Second, J. Dixon.

HAMBURGH (Silver-spangled).—First, H. Carter, Holmfirth. Second, J. Dixon, Bradford. *Chickens.*—First, H. Carter. Second, F. Hardy, Bradford. Highly Commended, J. Dixon.

HAMBURGH (Golden-pencilled).—First, F. Hardy, Bradford. Second, J. Dixon, Bradford. *Chickens.*—First, F. Hardy. Second, J. Dixon.

HAMBURGH (Silver-pencilled).—First, J. Dixon, Bradford. Second, F. Hardy, Bradford. *Chickens.*—First, J. Dixon. Second, H. Ramsden, Holmfirth.

POLANO (Black with White Crests).—First and Second, J. Dixon, Bradford. *Chickens.*—Prize, J. Dixon.

POLANO (Golden-spangled).—First and Second, J. Dixon, Bradford. *Chickens.*—First, J. Dixon. Second, F. Hardy, Bradford.

POLAND (Silver-spangled).—First and Second, J. Dixon, Bradford. *Chickens.*—Prize, J. Dixon.

GAME (Black breasted and other Reds).—First, G. H. Crossland, Wakefield. Second, R. Healey, Holmfirth. *Chickens.*—First, T. B. Stead, Leeds. Second, F. Hardy, Bradford. Highly Commended, S. Schofield, Heckmondwike; G. H. Crossland.

GAME (Whites and Piles).—First, L. Wilkinson, Holmfirth. Second, G. H. Crossland, Wakefield. *Chickens.*—First, R. Healey, Holmfirth. Second, F. Hardy, Bradford.

GAME (Black and Brassy-winged, except Greys).—First, Master G. H. Crossland, Wakefield. Second, Messrs. Noble & Ineson, Staincliffe, Dewsbury. *Chickens.*—First, Messrs. Noble & Ineson. Second, Master G. H. Crossland.

GAME (Duckwings and other Greys and Blues).—First, Messrs. Noble & Ineson, Dewsbury. Second, F. Hardy, Bradford. Highly Commended, G. H. Crossland, Wakefield. *Chickens.*—First, Master G. H. Crossland. Second, F. Hardy. Highly Commended, G. H. Crossland. Commended, J. Horner, Horbury.

BASTAMS (White, any age).—First, S. Schofield, Heckmondwike. Second, S. Pickard, Wakefield. Highly Commended, Master G. H. Crossland, Wakefield.

BASTAMS (Black, any age).—First, J. Dixon, Bradford. Second, S. Schofield, Heckmondwike.

BASTAMS (Silver-laced, any age).—Prize, J. Dixon, Bradford.

BASTAMS (Golden-laced, any age).—Prize, J. Dixon, Bradford.

BASTAMS (any other distinct breed, any age).—First, S. Schofield, Heckmondwike (Game). Second, Master G. H. Crossland, Wakefield.

ANY BREED not mentioned in the foregoing classes.—First, T. M. Brooke, Dewsbury (Brahma Pootra). Second, J. Dixon, Bradford (Malay). *Chickens.*—First, J. Dixon (Malay). Second, Master G. H. Crossland, Wakefield (Black Hamburg). *Cock.*—First, J. Dixon, Bradford (Duckwing Game). Second, G. Robshaw, Dewsbury (Game). *Hen.*—First, G. Robshaw (Spanish). Second, S. Schofield, Heckmondwike.

DUCKS (White).—First, J. Dixon, Bradford. Second, G. Robshaw, Dewsbury.

DUCKS (Rouen).—First, J. Dixon, Bradford. Second, Mr. Hirst, Boyne Hill, near Wakefield.

GESE.—Prize, J. Dixon, Bradford.

TURKEYS.—Prize, J. Dixon, Bradford.

A PLEA FOR GAME FOWLS.

I PRESUME that all will allow that the comb and wattles of a Dorking cock are one of its greatest ornaments. Now the comb and wattles of a Game cock are naturally very similar (in proportion to the size) to those of a Dorking. Why, then, are they doomed to be deprived of such great ornaments? This, I believe, even our Judges cannot answer, though they will tell you that it is an imperative rule that "the comb and wattles of a Game cock must be well dubbed." Some may say it is an old custom continued from time immemorial. Undoubtedly it is, but nevertheless a very cruel one. Others say that they are more pugnacious when not dubbed; but that is absurd, for even if they were it would make no difference, for whether dubbed or not two Game cocks cannot be kept together in the same run. I believe many would prefer this beautiful breed to others which they now keep, if it were not for the cruelty they must practise if they wish to exhibit them. The days of cock-fighting are happily nearly gone by, and I am sure our chief breeders do not keep them for that purpose. Why then do they act as if they did? It is just such another absurd practice as that of cutting dogs' ears to make them look handsomer, as some think, as if they could improve upon Nature. It is as great pain to the cockerels to have their combs and wattles cut off, as it would be to us to have our ears shorn off.

If the Committees of some of our leading shows—such as Birmingham or the Crystal Palace, would take up the matter, and require all Game cocks to be shown with full combs and wattles, or allow them to be either dubbed or not, according to the fancy of the exhibitor, I believe they would do great service to the cause of humanity, and the custom would soon be entirely abolished.—HUMANITAS.

THE RABBIT (LEPUS CUNICULUS):

ITS HISTORY, VARIETIES, AND MANAGEMENT.

(Continued from page 420.)

RABBIT COURTS.

RABBIT courts are enclosures or paved yards in which Rabbits may be kept in a semi-wild state. They are of easy construction, and there are many places that could with little expense be converted to the purpose.

A court-yard paved and bounded by buildings, either houses, stables or sheds, and if these are on two sides so much the better, leaving the ends or other sides open for the free admission of air and sunshine; but these ends should be enclosed with walls

of not less than 5 feet high, and if anything more is required to keep out fowls, &c., a fence of wire netting placed on the top will answer the purpose. In the corners or centre should be placed mounds of earth, protected from the rain, in which the Rabbits can burrow and find shelter.

I lately had the opportunity of viewing a large court in Sussex. This court was made in an old melon ground about 200 feet long by 120 feet wide, enclosed with eight-feet walls. Along the south wall were arranged under a lean-to roof of asphalt about fifty or sixty hutches, in which were kept the breeding Rabbits; the court was only used for young ones, which were turned out when about eight weeks old, and allowed to remain till four months old, when the bucks were gelded or killed, except those kept for breeding. This court was not paved, which was much against it, as the land was very heavy, and when a continuance of rain fell it was in a bad state; but the proprietor was going to have it well drained, which would lessen the evil. In the centre was a large mound of earth thrown up to the height of 5 feet and several others along the wall; these were all protected from rain by roofs of different descriptions, but the centre mound was the favourite with the Rabbits. The man informed me that on a fine morning the top would be crowded by the Rabbits performing their toilettes.

In making a court the fancier should always endeavour to get a south aspect, and the north and east bounded by buildings, which will save the expense of making the necessary protection, otherwise it would be necessary to have these sides boarded to the height of 4 feet or 5 feet. The south should be open trellis or wire netting. The floor should be sloping; the floors composed of cement and sand have been found to injure the Rabbits' feet by being too rough, and bringing on what is termed sore hocks, the same as with hutch Rabbits that have no litter under their feet: therefore it has been found necessary to cover the floor of the court with sand or gravel about 2 inches or 3 inches thick. This, of course, will require removing either once or twice a year, according to the number of Rabbits kept upon it. Straw, sawdust, or dry leaves would have the same effect, and would all be useful for manure when removed.

The mounds should be placed at the back with a leaning roof to protect it from rain; and also the feeding-troughs should be protected by some roofing, so that the Rabbits can stand and feed without getting wet while taking their food. If the court is connected with the shed in which the breeding Rabbits are kept so much the better, as it will afford additional shelter in wet weather to the Rabbits loose in the court.

I may add that the court is only suited to certain varieties, such as Silver Greys, Himalayas, and all others, excepting the long-eared and the Angoras, both these varieties require warmth.

Rabbits so kept are much more amusing than those hidden in their hutches; and this exercise assists their development considerably, and with young Rabbits reared in courts you will seldom find them attacked with pot-belly—one of the greatest evils in rearing hutch Rabbits. I strongly recommend a court to those whose premises, &c., would allow of the plan being adopted.—R. S. S.

(To be continued.)

DEVIZES POULTRY EXHIBITION.—This is fixed for Nov. 5th and 6th. The prizes are liberal, varying from first prizes of five guineas downwards. There are also sweepstakes for single cocks of all the principal breeds.

REMINISCENCES OF A GAMEKEEPER.

(Continued from page 470.)

I NEED hardly say I had few opportunities of saving money under "manager." Beyond the sum actually necessary for my subsistence, I earned nothing, and when the settlement came more than half the items for necessary disbursements were disallowed at the counting-house. I ought to produce written orders or receipts for every penny I had expended. One of manager's clerks explained to me that five hundred caps implied ten shots per diem for fifty days, and manager made a note against it—"Query, what return for all this shooting?" I could not battle for trifles against these "men of the pen," and I left my place penniless.

No man is worse off than a gamekeeper out of place. He has little resource. As a rule he is a man who has taken to that

which suited his nature, and he has undergone no training as a labourer to fit him for earning his livelihood as one. Then he is not a favourite with labourers; all men who work on an estate look with suspicion on the gamekeeper: his duty is to watch them. The man who takes a head of game unlawfully becomes his foe. The keeper out of place has to look for opportunities of earning a trifle by taking charge of dogs from one place to another; by acting as loader at a battue; or by attending for two or three days in a week on some townsman who has taken some shooting. The last is very hard work, and yet I have laughed till my sides were sore with suppressing it.

The first arrival. The master hardly out of the railway carriage before he asks for "the keeper" to tell him where the dog is, and his name—eternal "Don" or "Ponto;" and although he does not go so far as our friend Puttington in that excellent Sporting Tour of Sponge's, who traced every bound to the "Beaufort Justice," yet in a long, lean, flat-sided, sharp-noted weed of an animal he will ask you to observe the unquestionable marks of Spanish blood; or that there is just the necessary cross of the foxhound to insure speed and lasting properties.

I should always advise a man who is on the point of engaging himself as assistant or keeper for a time to survey the shooting, or rather the country, and also the man to whom he is about to hire himself. There were many ditches in my part of the country, and, being kept constantly cleaned out, they were deep and wide; it was necessary they should be, as they had to carry off much water in the winter. They had high banks, but no shrubs of any kind growing on them. They were easy enough to jump by any young, active man, but they were sad posers to my temporary master and his friends. They were all arrived at the age when men begin to increase in rotundity, and when they no longer call the attention of their friends to the difference in the tailor's measurement between the chest and the waist. Now the clayey sticky bottom of the ditch was always thrown on the opposite bank, raising it considerably, making it stiff fencing for those unaccustomed to it. My duty was to get over and hold out a long stick for them to grasp when they jumped, and I was then to pull them up. How I have laughed within myself when a good fifteen stone has put on all his steam, gone at the ditch with a rush, cleared it, laid hold of the stick, but alighting rather too low he has slid down to the bottom, and alighted in six inches of water, accusing me of giving way. I have watched the countenance as I stood on the bank pulling with all my might. Concentration of strength and energy to enable the toes to do the work of the feet, and to support the body; alarm as they began to give way, frantic pulls at the stick, and at last, when the down-slide had begun, blank despair and resignation. But others, and still more amusing were those who with youth, health, activity, and everything else on their side, cannot shoot.

I was employed for two months on a manor that was let to a number of young men, all friends, and all men of property. It was a treat to see their appurtenances. Every description of gun and case; all sorts of caps, powder and cartridge; dogs out of number. All that money can do to kill game was done; but none of them could hold straight enough. Many a time they have had me in the room after dinner in the evening to explain to them the whole theory, and they have declared the following day they would kill everything. They shot as before, and then it was amusing to hear the reasons assigned for missing. Some knew they shot in too great a hurry; others knew they shot under the birds; some were so confoundedly nervous; but all knew why they missed, and yet they could not remedy it. The average of their killing was one shot in twenty, except on great days when we used to beat the woods. They had one virtue—they were very liberal, and I earned much money with them; but it was only for a time, and I was soon reduced very low.

About this time I heard a second keeper was wanted in an adjoining county. I started for a thirty-miles walk early in the morning. I was buoyed up with hope, because I knew it was one of those families where servants remain a lifetime. Weary, hot, and footsore, I got there in the evening. I soon found there was no manager here. The servants were good easy-going men, who filled out their clothes. I had trembled all the way lest the time consumed in walking there might cost me the place, by enabling some more fortunate man to get there before me. It was with trepidation I approached the head-keeper's house. It was a nice place, well planted with flowers, and evidently well furnished. It had an air of comfort and well-doing about it, that made me ask myself whether such a place would ever turn up for me. I inquired for him, and was told by a stout lad who

was cleaning some boots that he was taking a nap, and would be out as soon as he was awake. I had well satisfied my appetite at the hall before I came to the keeper's house, and was quite ready to sit down after my thirty-miles walk. I did not wait long. My superior was a smooth-faced, rosy man, very stout, and of more than comfortable appearance. It was evident the world had been easy with him, and he could not have answered the question of "Tummas"—"I say, John, what is taxes?" The place was not gone, the wages were liberal, the house comfortable, everything provided. I was soon engaged subject to the master's approval. I was told I should have often to act as upper-keeper in going out with the squire, as the head one was very subject to gout and rheumatism, brought on, he said, by overwork and exposure when young. I thought, perhaps, the nap after dinner might have to do with it.

I was very anxious the next morning for my interview with my master. Everything connected with the place seemed so superior to anything I had before seen, that I could not help fancying I should not be successful in obtaining it, but I was. My master was a tall, portly man, with a most cheerful and benevolent expression of face. He was a single man, but for many years an old friend had lived with him. There was no difficulty about character, and I thought he would have laughed himself into a fit at my description of "manager," and at the sight of my book with his remarks.

"You look very thin," he said, eyeing me closely. I said, being out of place so long had reduced me. "Well," he said, "it will take you a fortnight to recruit, enter your cottage at once, take your meals at the hall, and we will then see what you can do."

(To be continued.)

A LITTLE ABOUT BEES.

SOME inquiry was made a short time since on the best way of supplying bees with water, and one gentleman complained that many of his bees were frequently blown into a pond or lake when trying to drink. I have a very simple, and at the same time very effective plan that I have used all the summer, and from the number of bees seen drinking it appears to be all we can desire. Take a common tumbler or wineglass and fill it nearly full of water, then place on the top of the glass a small plate or piece of earthenware so as to cover the top of the glass and leave a rim of an inch or more all round. Turn the glass and plate over, a little water will come on the plate and thus a fountain is made at once which gives down water as fast as it is required, but never enough to drown a bee even if it falls into the water, as the depth will not be the sixteenth (1-16) of an inch. Place plate and glass on a piece of wood near the hives and all is complete. A bit of broken slate will answer instead of a plate. For those who cannot attend to their hives every day I would use a wineglass instead of a tumbler, for I find if the water be left long before it is changed it becomes bad, and then the bees will not drink at the same place even when fresh water has been given.

Cowdung has been recommended for smoking bees. I tried it, and though it was dried in an oven I could not get it to burn. One year I tried tobacco and suppose I gave too much, for the bees were smoked out of house and home. I wonder if they thought it was washing-day! This year I took some common brown paper and made a cigar, such as we used to smoke when we carried marbles in our pockets, and green apples in our stomachs, and it answered the purpose very well; the bees were quiet, and do not seem to have any ill effects after it. That is more than we could say. How frequently has the pale face told the tale of the paper!

A very good and amusing story you tell of a poor Scot running miles after his bees, and they would not settle. Whenever they do this here the cottagers take fine sand or dirt and throw up among the swarm, then down comes the swarm. Old Virgil tells this, but I am sure my friends are guiltless of his acquaintance. I do not send you the Latin quotation, for though a little Latin looks very learned, yet we must not forget THE JOURNAL OF HORTICULTURE is still THE COTTAGE GARDENER. However, for your classical readers, I refer them to "Georgica, lib. iv., l. 85 et seq." In Bohn's "Virgil" there is a note on the Ligurian bees as follows:—"This, like many other of Virgil's statements respecting bees, is erroneous." Poor old Virgil! But can any of your readers tell me if it be true or not that bees take up

small stones to keep themselves steady in their flight in windy weather? Bees must have held an important place in the economy of the Romans, or the patron Mæcenas would not have had a book written especially on them. In modern times we have not yet paid our debt to "THE DEVONSHIRE BEE-KEEPER," for bringing out of obscurity the Ligurian bees, or at least into a positive fact for all who like to take the trouble to inquire.

Now, as this has been a pretty fair year for honey, will Mr. Woodbury kindly give us some kind of table of the product of honey from the Ligurians and the black bees? Such an account would tend to prove the superiority of the one over the other.

When do you mean to give the public the advantage of a new edition of "Bees for the Many?" Taylor's book is much lauded, but I for one like the little manual better. True, it does not look so fine on the drawing-table, but then all THE COTTAGE GARDENER readers have not drawing-rooms. What does Taylor mean by a knife "bent at a right angle at one end, at the other at an angle of 80° or 90°?" Is not 90° a right angle? Again, "The most highly-cultivated districts are rarely so favourable to bees as those in which wild commons, woods, and beathy moors prevail; or where some such farm products as Dutch clover, trefoil, saintfoin, buck wheat, tares, mustard, colewort, turnip blossoms, &c., do not enter largely into the staple of the country." Here the Dutch clover, buck wheat, &c., are covered with bees when the plants bloom. What does he mean?

The best cure for a sting of a bee or a wasp is tobacco. See Manual, page 20.

Those who doubt that sparrows and other little birds do good should take a nest, put the young in a cage, and see what the old ones feed the young ones with. Frighten the birds from corn, &c., but do not kill them.—X.

THE QUEEN BEE.

DOES A VIRGIN QUEEN BREED DRONES?—RESULTS OF HER LOSS.

I INFER from "A DEVONSHIRE BEE-KEEPER'S" remarks that he considers a virgin queen may be capable of producing the eggs of drones; and as this is quite a new light to me, I would ask if there is any evidence in direct proof of the fact. There must, no doubt, be many difficulties in the way of demonstrating it conclusively; in fact, the only satisfactory way of deciding would be to examine the queen every day after four P.M. Again, it may be suggested, In what condition is a queen when a second fecundation becomes necessary?

Will your correspondent also kindly inform me if excitement and tumult invariably ensue on the removal or loss of a queen, and if otherwise, whether the bees would avail themselves of brood to raise a new sovereign, supposing there was none in the hive?

Again, in the event of a young queen not returning from her aerial excursion, what would be the demeanour of the workers in such an emergency? My own experience, as far as it has gone, is that the bees exhibit signs of uneasiness towards evening, but not to such an extent as to attract the observation of a casual observer, and this restlessness gradually sinks into despair. Under such circumstances I have found the bees hatch out some brood which was fixed in the hive, but make no attempt to raise a queen. Brood-comb was again presented, and a queen was raised, and on this second occasion, if I remember right, I fed the hive at the same time, and have now the impression that when it is wished to raise an artificial queen, it is desirable to feed simultaneously with a little pure honey.—INVESTIGATOR.

[That a virgin queen may be capable of laying eggs which will hatch into drones, or, in other words, the occurrence of true parthenogenesis in the honey bee, rests upon such conclusive evidence that it now takes rank as an undoubted scientific fact. It is to the apiarians of Germany that we are indebted for the promulgation of this discovery, which has been abundantly proved by the experiments and observations of both Dzierzon and Berlepsch. Siebold, probably the most distinguished of German naturalists, has investigated and confirmed this remarkable fact, and his conclusions are, I believe, indorsed by no less an English authority than Professor Owen himself.]

With such a weight of testimony in its favour, I have been content to receive parthenogenesis as a proved fact, and have, therefore, never subjected it to the test of direct experiment. At the same time I am bound to say that such circumstances as have come under my observation tend most unquestionably to

confirm it; and although they fall so far short of absolute proof as scarcely, perhaps, to be admissible as arguments, they appear sufficiently conclusive to leave no doubt on my own mind.

So extraordinary a phenomenon as true parthenogenesis, or production without intercourse with the male, cannot, of course, be received as a fact without the most conclusive evidence, and this has been forthcoming in various forms. Baron Von Berlepsch contrived the exclusion of queens at the end of September, when there were no longer any males. He succeeded in keeping one alive through the winter, and she produced drones the following spring. That this drone-breeding queen remained a virgin was proved by the dissection which Leuckart undertook at the request of Berlepsch. Dzierzon also found drone-laying queens in some of his hives whose wings were so imperfect that they could not fly, and which were consequently unfecundated. I myself came near confirming this fact only a few days ago, when I discovered a young queen with undeveloped wings, which could, therefore, never have taken flight to obtain intercourse with a drone, but which, nevertheless, from her distended abdomen was evidently about to commence laying, what I have no doubt would have turned out to be drone eggs. Had I then been aware that the question would have been mooted, I should probably have seized this opportunity of putting my convictions to the test of experiment; but as it was, I did not feel inclined to sacrifice the well-doing of a stock of bees for the purpose of confirming a fact which I looked upon as being already established by the most irrefragable testimony.

It will, doubtless, be remembered that the illustrious Huber, after discussing the effects of retarded impregnation (which, however, appear to me more directly referable to true parthenogenesis), exclaimed, "It is an abyss in which I am lost!"

This abyss appears to have curbed the footsteps of all his successors in the difficult path of apiarian investigation, until Dzierzon succeeded in bridging it across, by what I believe to be the true theory of reproduction in the honey bee. He pointed out that whilst the virgin queen possesses, as I have before mentioned, the power of laying eggs which will produce males, she by copulation with a drone acquires the ability to lay those also which will produce females. She can, at the same time, determine the sex of every egg she lays, and has the power of laying the eggs of either sex at will.

As I have myself verified his doctrines as to some of the anatomical causes of these remarkable phenomena, I will first briefly state the result of my own investigations. On opening the abdomen of a virgin queen, I have found a small globular sac, called the spermatheca, or seminal reservoir, communicating with the oviduct, and filled with a semi-transparent watery fluid. On examining a young impregnated queen I have found the spermatheca of the same size, but filled with a perfectly opaque fluid of a milk-white colour.* The spermatheca of an old queen, although filled with the same milk-white fluid, I have found to be diminished to less than one-quarter of its normal size, giving proof by its diminished volume that the period of exhaustion was approaching, and confirming to that extent the testimony of Berlepsch, who states that he has known an old queen, with an exhausted spermatheca, return to the drone-laying condition of a virgin queen.

Dzierzon's theory is in perfect unison with the foregoing facts. He believes that the ovaries of a queen bee remain unimpregnated after copulation, and that the male semen is stored in the spermatheca. Every egg in the ovaries of the queen is of the same kind, and all are capable of being brought into contact with the contents of the spermatheca if she so wills it; and, in this case, all would produce females. As, however, it is necessary that drones should be forthcoming in due season, some are laid without such contact, and these hatch into males: it will, therefore, be understood that worker eggs are fecundated, whilst drone eggs are unfecundated by the male semen.

Siebold confirmed this doctrine after a laborious microscopical investigation, during which he found a set of voluntary muscles for imparting a portion of the contents of the spermatheca to every worker egg, and discovered lively spermatozooids in the semen of the drone as well as in the contents of an impregnated spermatheca. He also detected the same spermatozooids in worker eggs, whilst they were entirely wanting in those which would produce drones.

Parthenogenesis is also demonstrated by the occurrence of fertile workers, which Siebold declares are proved by micro-

scopical examination to be absolutely incapable of copulation with the male bee or drone.

The soundness of Dzierzon's reasoning has, however, been most conclusively demonstrated by Dr. Donhoff, a German apiarian, who, it is stated, has succeeded in raising a worker larva from a drone egg which he had artificially impregnated.

With regard to the condition of a queen "when a second fecundation becomes necessary," I am not sure that I exactly understand the question, but do not believe that a second fecundation ever takes place, at any rate after egg-laying has commenced. I have, nevertheless, known a young queen make numerous aerial excursions, and in one instance saw her take wing whilst a vigorous persecution of the drones was taking place in her own hive, and, therefore, as I imagine, after impregnation had been effected. Her absence (five minutes) was, however, so short as to render it unlikely that it had resulted in dalliance with a drone, even if such had been her object. M. Hermann says that he has noticed that queens which indulge in a plurality of aerial excursions extend to a larger size, and are more prolific than others. Without attempting to explain this coincidence, I may state that my own experience tends to the same conclusion.

Excitement and tumult are by no means the invariable accompaniments of the removal or loss of a queen, since I have known a queen removed from, and a young queen raised in, a hive without the slightest apparent disturbance. I have also lost many queens during their aerial excursions without being able to discover from the demeanour of the workers that such a misfortune had taken place. On the opportunity being afforded them they have always endeavoured to supply their loss. I have, however, no doubt that "INVESTIGATOR" is right, and that it will be found advantageous to stimulate bees by feeding whilst engaged in raising a young queen.

No apology whatever is needed for making inquiries like these, which are so far from being troublesome that it always affords me much pleasure to answer them to the best of my ability.—A DEVONSHIRE BEE-KEEPER.]

HORNETS AND WASPS SERVICEABLE.

DAVID E. COX, of Lincoln Co., N.C., writes to the *American Agriculturist*, that hornets and wasps are very serviceable in destroying insects which injure vegetation and that they should, therefore, not be molested, but encouraged. He says that they rapidly cleared a pear tree on his premises of the aphides which infested it; also, that a neighbour of his had a crop of tobacco saved from worms, which were destroyed by hornets. It is true that hornets and wasps prey upon insects, for the sake of the vegetable juices they contain; but they are also troublesome by attacking fruits, and their venomous stings make them unpleasant neighbours. Perhaps, however, they are more beneficial than injurious; if so, let them be preserved. Here is an interesting question for the investigation of young entomologists, who will find in it both pleasure and profit.—(*Boston Cultivator*.)

TO FASTEN KNIFE-HANDLES.—The *Chemical Gazette* says:—"When knives or forks have come off the handles from being carelessly put in hot water, or otherwise, a cement, made as follows, will be useful to refasten them:—Take of gum shellac two parts, and prepared chalk one part; reduce them to powder and mix thoroughly. Fill the opening in the handle with the mixture, heat the shank of the knife and press it in. Then keep the handle out of hot water."

OUR LETTER BOX.

RABBITS LOSING THEIR FUR (*Lapin domes iqne*).—This symptom and the skin having a white scurf, may be relieved by rubbing mild sulphur ointment on the places. Cover the flagged pavement of their room with sand and two lucas.

LONDON MARKETS.—SEPTEMBER 16.

POULTRY.

There is still but a moderate supply, and a wretched trade. There are as many Partridges as are wanted, but many of them are small.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls	2 6	to 4 0	Guinea	2 0	to 2 6
Smaller Fowls	2 6	3 0	Partridges	0 9	1 6
Chickens	1 9	2 0	Pigeons	0 8	0 9
Ducks	2 0	2 6	Rabbits	1 4	1 5
Geese	5 0	5 6	Wild	0 3	0 9

* Both German and American naturalists concur in stating that this fluid is identical with the semen of the drone.

WEEKLY CALENDAR.

Day of M th	Day of Week.	SEPTEMBER 24-30, 1861.	WEATHER NEAR LONDON IN 1860.				Sun Rises.	Sun Sets.	Moon Rises and Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
24	Tu	<i>Gordonia pubescens.</i>	29.734-29.487	deg. deg.	N.E.	.80	m. h. 51 af 5	m. h. 53 af 5	m. i. 43 7	20	m. s. 8 4	267
25	W	<i>Vitex agnus-castus.</i>	29.739-29.523	36-29	S.W.	.01	53 5	51 5	24 8	21	8 25	268
26	Th	<i>Salvia erecta.</i>	29.788-29.611	60-37	S.E.	.24	54 3	48 5	21 9	22	8 45	269
27	F	<i>Ligustrum lucidum.</i>	29.676-29.626	66-47	S.W.	.14	56 5	46 5	24 10	23	9 6	270
28	S	<i>Magnolia.</i>	29.755-29.694	57-44	N.	.09	57 5	44 5	35 11	24	9 25	271
29	Sun	18 SUNDAY AFTER TRINITY. MICH.	29.928-29.851	58-35	N.	.01	59 5	42 5	morn.	25	9 45	272
30	M	<i>Escallonia.</i>	30.101-30.027	61-44	W.	—	61 5	39 5	52 0	26	10 4	273

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 65.6° and 45.2° respectively. The greatest heat, 82°, occurred on the 25th in 1832; and the lowest cold, 21°, on the 27th in 1828. During the period 116 days were fine, and on 122 rain fell.

HAMPTON COURT GARDENS IN THE MIDDLE OF SEPTEMBER.



LONG absence of rain since the middle of August has caused the flower gardens in the south and most parts of England to be much parched, and all that the flower-gardeners could do was to pour water in floods on their beds and borders; while the people in the highlands and the north of Scotland were watching between the showers for the movements of the misty clouds and other signs known to the weatherwise, with anxious thoughts about their crops or their sports and pleasures, just as they had been over in Ireland before the Queen's visit. At Kew, Kensington, Sydenham, and Hampton Court, the beds were never drier in September than they have been this season. But Hampton Court stood this severe drought as

well as any place I know; but it must have been at the cost of much more labour, owing to the peculiar disadvantages of the place in being hedged in on all sides by dense masses of forest trees, which stretch their greedy roots under the whole of the flower department. Add to all this, that nineteen out of every twenty beds there have each a wide-spreading Yew tree in the very centre of it. These Yews and beds being in single rows along the sides of the walks, the shade from a single tree does not seem to hurt the flowers in the least; and some flowers, which will be mentioned presently, do very much better in a hot, dry season under the trees than on the open lawn.

Now, if you had a flower-bed of any size on the bare lawn in such a season as this, or in very hot weather at any time, and were to set up a pole in the centre of it, and east a tent or some canopy or covering all over the bed, but the matter of 6 feet or 7 feet clear all round the sides, your bed would be as scores of large beds are at Hampton Court, with the extra advantage of having no roots from the pole running under the bed and sucking it below more than the flowers exhausted the surface. This is a great point gained for small adventures in flower-beds. There is not a single tree, or one standing apart by itself on a lawn, which might not have a nice flower-bed under it, if the branches are not lower than 7 feet all round. A Beech tree or an Ash tree is, perhaps, a little more faulty than a Yew tree, or any tree that is covered all over with strong Ivy, as many are at Hampton Court. But, Mr. Donald's management would grow

Tom Thumbs to perfection under the oldest Ash tree, or the strongest Beech tree in the three kingdoms. That is now a certain fact, though very few gardeners could believe it unless the fact was put beyond the shadow of a doubt. Without advising any one to make a flower-bed under a tree on the lawn, if there is sufficient room on the grass, I think it of the greatest consequence to know that by screening beds of flowers from the direct rays of the sun for months together you are not hurting plants or blooms, but actually improving both. That is one of the best lessons one can learn at Hampton Court.

The next lesson is the direct experiments with Mr. Donald's gains from the desert—the wilderness of his immediate locality. We owe to him entirely for two of the most telling beds we possess, and for two more which are not of so much value. He has been experimenting on them this season to render them more practicable, and has succeeded to his heart's content. He has now whole beds of *Antennaria margaritacea* as closely grown and as even on the top as *Cerastium tomentosum*; and not only so, but by another move he could make you or your teacher believe that he had discovered a *Cerastium tomentosum* superbum which grew to 15 inches or 18 inches high, either for an entire bed or for an edging to a bed of Mrs. Vernon Nosegay Geranium, or for a break between the Mistress and Punch on a ribbon-border, and that *Cerastium tomentosum* superbum is nothing else than the woolly everlasting called *Antennaria margaritacea*.

By dividing it, say early in May from the shoots then rising from the old roots, with an inch of roots to each shoot, by planting these as thick as 1 inches or 5 inches apart each way, and by pinching out the blossom-buds as fast as they show themselves; also, if a stronger shoot offers to rise beyond his fellows in any part of the bed or row, off with its point, and four more moderate points will succeed. Your bed or row will be just 15 inches high on moderate soils, and as close along the top and as even that a sparrow in boots could walk a mile over it without a hitch, or quite as close and dense as ever you saw an old patch of *Cerastium tomentosum* growing on the stump of a tree in a rootery, or hanging down from a shelving rock or precipice over a waterfall in dell or wilderness. We had that plant in our hands for the last three generations, and no one thought of it as the very best white plant of its size in Europe for the present fashion of flower-gardening. Next season every nursery where they sell bedding plants—and I take that embraces every nursery in the three kingdoms—will have thousands of plants of this *Antennaria* on sale, or can get them from the London trade. And the same with *Stachys lanata*, at which all the public gardeners about London jumped the moment they were told in this work the marvels which had been got out of it at Hampton Court.

The bed of young Lavender plants which was tried last year is now so close and even on the top that a bird fancier might exercise his linnets over it at volunteering. I never saw a better neutral bed. Then the plain green *Alyssum saxatile*, which blooms in beds in April only

elsewhere, is made at Hampton Court to last out the season; first, by thinning off part of the flower-shoots before they are just at their prime; and secondly, by not allowing it to form a seed-pod at all—or, to understand the thing properly, say they do the evergreen rock Alyssum at Hampton Court as everybody ought to do their Mignonette when he or they wanted to make it last out the season in bloom. Then the two native Lamiums, the purple and the white, are both spring bloomers, and are up at their pitch about the time of bedding out the Geraniums. Then the moment they begin to decline let their whole herbage be cut down close to the ground, and they will be up again before the Verbenas cover their beds, and look a genuine healthy green for the rest of the season; and in an ordinary one, the two will bloom on occasionally the summer through. The Lamium is one of the best to bed under trees. A perfectly new bed, and a most interesting one, is now under experiment there, and there are upwards of fifty kinds of out-of-the-way and hardy plants under consideration in the back-stair court; among them is the *Scrophularia nodosa variegata*.

But about the new bed. It is a Geranium-bed all over—the old Geranium sanguineum struck from autumn cuttings just like Verbenas, but in the cool. Hundreds of little plants of it were planted out at 3 in. h/s or 4 inches apart in the spring, and, if you believe me, the whole bed is one-third in bloom, or was so last week; but without flowers it makes one of those neutrals which are so useful in some situations. Of course every seed-pod is cut off as fast as it comes, also the flowering-shoots are stopped once or twice while the bed is in its natural bloom—that causes it to bloom on occasionally through the season, just like Alyssum saxatile. All the beds there have been planted this season each with one kind of plant only—no edgings and no contrast, save that of one bed with that, or those nearest to it, and for that style of flower garden the plan is the best that could be adopted. The strong colours as yellow and scarlet, and the neutrals as *Stachys lanata*, and many more such are so disposed at intervals as to make an obvious and easy combination wherever a lot of beds are seen at one view.

It is a very difficult thing to manage the colours as we have them in our day in a Dutch garden like that of Hampton Court, where the plan is some centuries old; and the best planting in the world is one-half lost to a stranger from not seeing more than a very few beds at one view, owing to the trees which occupy the run of all the beds. Tom Thumb is the best Scarlet Geranium now at Hampton Court; but there are many kinds. Punch is mad there, and does no good at all. Dennis' Alma makes one of the best telling beds within twenty miles of London after the angle-bed of Punch at the Crystal Palace. Ignescens major of Sweet's Geraniaceæ is as good, if not more telling, at Hampton Court than Ignescens superba at the Crystal Palace. There are two good beds of Miller's Nosegay Geranium, called by them sanguineum. This is not yet at the Crystal Palace; but Mr. Eyles made his first two beds of it on entering on the South Kensington Garden. It makes a very good bed, but not such a bright one as the Crimson Minimus Nosegay—the best dwarf bedding Geranium we have for a bed. The next oldest Nosegay, the Fothergilli, which put the bedding of the Crystal Palace in the first rank for the first time this season, is not yet at Hampton Court; neither is Mrs. nor Miss Vernon, which match so well on the Rose Mount.

There are two distinct kinds of *Perilla nankinensis* at Hampton Court; every leaf on one is as plain as a Lime leaf, the other is the common one. There must be several thousands of plants of *Perilla* there, and not one of them failed or is behind those at Kew. There are two model beds in two different parts of the garden to show how to dispose of colours in match pairs from a key, or centre point, or bed; each of these has fifteen rows across it. Flower of the Day being the centre or key row, then seven duplicates correspondingly on the right and left. I shall now give the colours as they are put, and mention a lot of the beds, and the more prominent and out-of-the-way of them, beginning at the front of the Palace and going to the left. The 1st bed is of Scarlet Geranium under a dense Yew doing capitally. 2nd, *Cineraria maritima*. All one bed of 3rd, all *Perilla*, the white of 2 contrasts, with the scarlet of 1, and the black of 3 the same. 4th is *Tropæolum elegans*. 5th, *Iberis sempervirens*, the next General Simpson Verbena, then Variegated Alyssum, followed by Purple King under a large tree and not looking comfortable; then *Calceolaria integrifolia*, or some variety of it, the first clear yellow in this run; then *Heliotropes* and Violets, or Cherry Pie for summer, and the Violets for

spring; then a bed of standard Roses; but Kew and Hampton Court want a leaf out of the Crystal Palace book about Roses.

All their standard Roses are most perfectly ridiculous as objects for effect. But there are, at the least, fifty kinds of first-rate Roses which could be grown to the height of these standards on their own legs from the surface of the ground. I say not on their own roots, because that is the best way; try the second best way, first in order to get one step beyond the present, or the worst way for that kind of soil and subsoil. One step at a time is the surest way to get up or down the ladder.

But the next bed after the foolish dry sticks with a little bunch of Rose-shoots stuck on the tops, is a whole shining bed of *Stachys lanata* done to a turn of the scale; next, a bed of Verbena Andre, the best red purple before the dark Purple King; next, *Calceolaria Kayii* and dwarf Marigold. This Marigold was the best plant in the catalogue twenty years since, to be kept in reserve for filling up where something failed, as it will remove any day of the summer or autumn, and be as fresh and flowery to-morrow as if nothing had happened.

Which is the best and next best for that work now? I think the best is the double of this same dwarf Marigold, and the second best the single of the same; but, perhaps, I am wrong, being such a while out of the "back premises," and not knowing how they manage that department of late. Now, pass several beds and we have the model for planting beds—the bed with fifteen rows. Flower of the Day is the key row in the centre; then Andre Verbena in single rows on each side of the centre; then two yellow *Calceolarias* to match one on each side; two *Perilla*, ditto; two Scarlet Geraniums, ditto; two Variegated Alyssum, ditto; two Purple King Verbena the same; and the two outside rows yellow *Calceolarias*. A similar bed is as far off from the front door of the Palace on the other side just to match. A bed of the rasp-leaf or pinnatifidum Geranium, with an edging of Prince of Orange round it, is the only bed with an edge there, except its match bed or beds. Madeline, an old light lilac Verbena, makes a capital bed of a very scarce colour. The plain green Alyssum saxatile doing well where no other plant could live, under a very dense old low-headed tree. Mangles' Variegated is the next for such a confined and out-of-the-sun place; Ageratum the next; Zelinda Dahlia next, but it must be trained down under trees and that completely spoils it. But the first beginnings at the Crystal Palace led the way to the most ridiculous style of barbarism by training down any mortal thing till their rows were bare as a barber's pole; but the rage gave people a sickening of that ridiculousness, and we shall soon get rid of the polish training.

There is hardly a plant trained low down this season at Hampton Court, except some few under the trees which could not be avoided. It is sometimes better to give tether than advise gardeners to shorten sail. The thing will more surely take a better turn if you allow them sufficient rope and never praise their faults. Kingsbury Pet Geranium is one of the very best under a Yew, where the sun never touches a petal of it. Henderson, the white seedling of 1846, is still the best white there and the best of the Horseshoe or Zonale for under trees.

A white Verbena with the same habit as Purple King sprang up from self-sown seeds there this season, and it promises to take the same position among whites as Purple King does among all the rest. In 1852, Mr. Scobie raised Purple King at Lord Holland's, at Kensington, and no Verbena has ever had such a run or such a scope. I recollect writing to a great lady about it when I first saw it before it was out, and I now write to you about this white, which might be an albino from the Purple King itself, and which I think will have an equal run. I had forgotten that Général Pelissier Geranium had Nosegay flower-stalks till I saw a good bed of it there. The little Santolina I noted from Kew last autumn, is there by the hundred now ready for next year to make a match for the Lavender-bed. But I must conclude with saying the old hedges of Laurustinus and the very large old plants of it in the "lower garden" below the ramparts, escaped the frost of last winter and hardly lost a leaf. But if ever I draw up a "summary" of this summer season I shall have a score of things to say of Hampton Court.

D. BEATON.

TRICOLOR-ZONED GERANIUMS.

I AM exceedingly sorry if I have maligned this pretty-foliaged section, but can assure "Z." that I have grown them (I believe nearly every one that has been let out), and that I have seen

them in as many gardens as most people, and that notwithstanding his remonstrance I must still state that my experience is the reverse of his. I do not for a moment question that the markings will be more vivid (all colour becomes more intense by exposure). Thus, I have at this moment a plant of *Celosia aurea* turned out, and its later blooms are a deep orange; but then they are so soon spoiled with rain, and in the foliage being kept clean it seems to me their success consists. I have never seen them satisfactory out of doors in this respect; neither are they as strong-constituted as the ordinary variegated *Geraniums*, and hence I have never seen them used for beds. Has "Z." ever tried them in this way or as part of a ribbon?—D., *Deal*.

WINTER FLOWERS IN ROOMS.—No. 1.

DOES any one wish this year to have a gay display of sweet flowers at Christmas? If so, I must beg to hint to them that now it is high time that they should prepare for making it.

Last year I tried a variety of very pretty flowers, growing them in various combinations, and without any means of advance whatever (as far as those I speak of were concerned), beyond a cellar-shelf and a large south window in a room where the temperature was not below 35° at night (except, perhaps, 2° on about two of the very coldest nights). These advantages, it is very evident, are not uncommon; and though the room I speak of was seldom very warm—hardly ever above 50°, an excess of heat would be more easily dealt with than an extreme of cold. By the windows, for example, it is rarely over-warm.

I am sure no one without seeing it would believe how gay my room was. Large dishes of most brilliant flowers succeeding each other on at least three tables; not to speak of the *Hyacinths* in glasses, or of the plant-cases, which are another story. Now I am preparing my this-year's display; and so encouraging are the testimonials that my little attempts at describing bouquets and cut flowers have already met, that I hope a few hints on preparing growing bouquets may not be unwelcome.

I do not think myself that mixing many colours ever answers well; and writing chiefly to ladies, I may use an illustration which they will enter into. Taking shades of wool—not for a flower, but merely for working into a formal pattern—have they ever found pink, scarlet, crimson, and brickdust colours to mix in well together? Will purple and Eugenie blue, mauve and magenta, amalgamate at all? Or what is the effect on blueish-white—that most exquisite shelly tint, I mean, like the white *Gloxinias* with the purple eye—on pinkish-white and on ivory white, of being contrasted with the perfect snow?

All ladies know that these colours will not do together. They may make their five, or seven, or even perhaps nine or eleven shades of the most intangible gradations of depth; and the more the shades the softer and more delicate will the colour be. But these are shades, not colours, and wonderful indeed is the difference made by this.

I want it, therefore, to be laid down as a law, that where one colour is, no different form of the same colour is to be introduced—only shades of the one colour there, and other distinct colours which harmonise with it well.

With a crimson set, for instance, one has pink, and one of the very prettiest sorts of pink too; but that is in harmony, as a shade of crimson. And then for the white to go with it? A pinkish-white, of course, to harmonise with the rest.

Harmony here, on the contrary, it seems to me, means contrast; just as in music scientific people tell me you must have a discord to produce sweet sounds.

May we, then, take for granted that in shading flowers ladies will bear in mind the laws of their German wool work, and turn that said work to some account of some sort? If so, we may pass on peaceably; only I may remark that as absolute proof is necessary to compare precise shades, I shall hereafter in a few instances give the lists of the few flowers I have at present retained shaded lists of, duly grouped together; though, as my observations for this have been very limited, I think that any one meaning to make up shaded sets had better explain their wishes to the seedsmen they employ. In some catalogues of bulbs, especially, white includes bluish and the paler shades of cream colour; the seedsmen, of course, understanding this, and generally knowing the exact shade themselves.

To proceed, then, to the work at this time in hand—and indeed it is a work that must not be long delayed.

There are a great many who think that *Snowdrops* and *Crocuses* are unhappy things to grow because they do run up so; and others, I know, have still a notion that *Tulips* are large flaunting sort of things not much to be desired.

Hyacinths, again, are all in vogue for glasses, and miniature *Hyacinths* for the children's playthings; but they are very lucky children, I think, who get such gems. Last year I shared with the children, and never did I see anything more pretty. Right glad was I this year to see my four old friends in their old place again in a Florist's list. The four I chose last year and have repeated this, in an extended form, are *La Candeur* and *Grand Vainqueur*—both of the purest white, one with long waxen bells, and the other with reflexed petals; *Diebitsch Sabalskanskoï* and *Ami du Cœur*, both of a pretty rose colour. These little beauties are only 3s. a-dozen; and the show, therefore, that 1s. 6d. invested in them will make is something rather striking.

I do not approve of mixing them. A glass milk-pan which I planted yesterday has six of *Grand Vainqueur*, and in the centre three of *Diebitsch Sabalskanskoï*. Nine *Scilla sibirica* are dotted down amongst them; and eighteen *Snowdrops* are also intended to droop their graceful heads and wave their slender foliage round the more brilliant wreath; into which, moreover, they are sometimes dotted.

A very pretty soup-plate may also be arranged to drop into a bowl, or to be surrounded with one of the wreaths of green I have so often spoken of. Such a plate would be very pretty with one (white) *La Candeur* in the centre, three (pink) *Ami du Cœur* in a sort of triangle round it; and round this again a *La Candeur* outside each of the three *Ami du Cœur*, and an *Ami du Cœur* again between each of these. Any space left I simply crowd with *Scillas* and *Snowdrops*, if possible placing some *Scillas* just about the centre between the triangle and the outer wreath of *Hyacinths*, and *Snowdrops* filling up in between the bulbs. The *Scillas*, too, are so pretty mixing at the edge.

A third device is of three pink *Hyacinths*, *Diebitsch Sabalskanskoï* for instance, and two white ones—say *Grand Vainqueur*; the three making a centre and two sides, the two filling up the places opposite each other. I had last year one of three pink and two white, and one of two pink and three white, and they did not look liney and were extremely admired. *Snowdrops* and *Scillas* again filled them up all round.

These all blossom so nearly together as to make a very good display. At the same time the *Scillas* begin so early, that even while growing up the plates look really pretty; and mine went on so long, that, after having seen the *Hyacinths* with them fade—and they were long in doing so—these little flowers went through many transplantations, filling up nooks wherever they were wanted.

I should mention that no sooner did one spike of pale blue flowers fade than I cut it off immediately close down to the root, and then directly up another came. Neither *Snowdrops*, *Crocuses*, nor *Scillas* were ever higher than they ought to be in the open air; only being shielded from smoke or rain, their exquisitely fresh appearance was something very charming. My plates, of course, were covered with moss before the flowers came out.

This season I am forming some plates of double miniature *Hyacinths*, with the design of prevailing on them to last yet longer than the single ones did last year. In their case the *Snowdrops* and *Scillas* will be put in a few days later, or *Van Thol Tulips* will be mixed up with them. I think, however, these may as well be left for another week to describe more fully.

Only, on a suggestion given last year by an authority in this Journal, I venture to advise any one who intends to have the sweet little red *Van Thol Tulips* double as well as single, and any one who aims at imitation *Roses* in months when *Roses* are not, and any one who is ambitious of lasting cups of the palest wax shading from rose to white, to place in a box or in a plate of slightly moistened sand, as many as they wish to have of the five kinds I name. Very few, probably, will begin to grow at first; and as one never knows which these very few may be, perhaps one wastes a good deal of trouble on those which would have done quite as well for a good while longer lying in a box. By this means one can arrange them fairly to run together when it comes to dishes or to potting. In the first instance, therefore, and that is now, make the bulbs stand as nearly as you can on a layer of dampish sand, and keep them in total darkness. The five kinds I name I may venture to vouch for in rooms—single red *Van Thol*, double red ditto, single rose and white ditto, *Rex Rubrorum* and *Imperator Rubrorum*, double crimson *Tulips*

All of these are tolerably low—from four inches to eight inches growth.

Now I will conclude with the actual work of planting.

The thick green glass milk-pans that I saw advertised in this Journal a few weeks ago are most charming things, and very superior to those meant for Hyacinths when they are for the table. To fill a round flower-stand planted with large Hyacinths the others would do admirably.

The dish, being half filled with silver sand, is thoroughly soaked with soft water. Then a quantity of dry sand being put on, we arrive within an inch of the surface in tolerably dry condition. The bulbs thus are kept moist without being ever wet. Each is pressed gently upon the sand, and not covered up at all. The dish is placed, as I said before, upon a dry cellar-shelf, and there it may remain untouched till the roots are more than an inch long. Attempting to force them sooner only leads to harm.—E. A. M.

ROYAL HORTICULTURAL SOCIETY'S GARDEN AT KENSINGTON GORE.

At page 445 of THE JOURNAL OF HORTICULTURE is a notice of the Horticultural Society, by "D. Deal," preceded by a few remarks on the trimming of the beds and the expense involved in this dead season of the year, which I think must have been written in forgetfulness of the fact that there was to be a public exhibition on the 1stth, and that, consequently, it was of importance the gardens should look as well as possible. I hardly think the allusions to the past quite fair under the circumstances. It is better to cherish the best hopes for the future, until there are unmistakable signs of waste and mismanagement.—F. R.

THE OSAGE ORANGE.

Two of my friends have each a plant of the Osage Orange. They were raised from seed brought from South America upwards of twenty years since. The plants are at least twenty years old, one is on a wall in a walled-in garden, in rather low ground; the other is a standard on heavy ground; they are in gardens about twenty miles apart. Both trees flourish but neither have bloomed.

You will oblige by giving any hints respecting their cultivation, so as to insure their blooming.—W. B., *Fakenham, Norfolk.*

[The Osage Orange trees are not worth cultivating in any part of England, as far as their fruit is in view; but it is very interesting to know they escaped the frost of last winter in this country. We had it thirty years ago on a south wall with the Mela Carla Apple and the original Celini Apple; we even had glass cases over them in spring, but all to no purpose, the fruit of none of them was better than the fruit of a Club Gourd.]

THE VEGETABLE CROPS OF 1861.

As the growing season for the most kinds of summer vegetables is fast drawing to a close, and those intended for autumn and winter being all in their places, and their success or failure may, to a certain degree, be judged of with tolerable accuracy, it is a good time to make a retrospect of the past, and report the condition of the various crops that have been gathered, or are in use, or coming forward, so as to enable those who live in other districts to compare the results here (Kent) attained with what they have experienced at home; and as this report will be best given in detail, I will begin with one of the most useful.

POTATOES.—Notwithstanding some unmistakable tokens of disease about the end of July, arising, no doubt, from the rains we had at that time, which caused a sudden and alarming state of disease in the crop, the fine dry weather of the present month seemed to arrest its further progress, and the disease, in many places, seemed confined to the top; and as the crop had well nigh arrived at maturity when attacked, they have ripened off pretty well, the proportion of bad ones being insignificant compared with that of former years, while the crop has been all that could be desired—exceeding that of several seasons lately. The general regret being that more were not planted. Some that were taken up towards the end of July when the disease showed itself have gone off in a sad manner, as might be expected;

but the quantity then taken up was not large. The variety called Flukes seem to have withstood the disease entirely, and the tops are now (the end of August) still green where not ripened off in a natural way; that altogether the Potato crop of 1861 has been more satisfactory than for several years past.

CARROTS.—These promised well until the middle of July, when a maggot attacked them, and they have, in most cases, become a total failure. I am not aware how the field Carrots have fared, as but few are grown around here; but the loss in garden Carrots has been almost total in all except the Early Horn, and those only that were sown very early have escaped. Some remedy or preventive for such a disaster must be tried another year, as Carrots cannot be done without in winter, and there is nothing to act as a substitute for them.

CABBAGE.—In hot dry seasons it is no easy matter to keep up a succession of them; and in a wet, cold summer like that of 1860, they suffer from an opposite cause. However, they have been all that could be desired this season, and instances of their having assumed an almost fabulous size are far from common. Plants that had been saved through the winter were scarce and much sought after in spring; but early sowings and successions have been plentiful, and carried on the supply well, and promise to do so as long as moderate weather will allow them to do so. This crop may, therefore, be regarded as a successful one.

LETTUCE.—Like the last-named this has also been good; but being more susceptible to the changes of weather from moist to dry than the Cabbage, by its not rooting so deeply, it has towards the latter end of August become not so good with us as it was in the earlier part of the season. But we must not complain, and Lettuce may be classed amongst the successful crops of 1861.

BROAD BEANS.—These are less liable to failure than most crops. Dry seasons curtail their usefulness certainly, but they only require to be sown oftener. This year they have yielded well, and the plant has been less attacked by the black fly and red rust than usual; although not entirely exempt from either of these evils, still the crop may be regarded as good.

PEAS.—This very important crop is seldom so good in Kent as it is in more northern counties, excepting for the very early crop. Dry, warm weather soon destroys the pod-bearing property of the Pea, and, mildew attacking it, its utility is soon at an end: it was, therefore, owing to the plant's dislike to dry weather that made it flourish so well in 1860, and up to the middle of August it did equally well this season, but now it has failed from the dry weather, which has been so beneficial elsewhere. The supply of Peas has been much above an average, and the crop of 1861 may be justly regarded as satisfactory. I may, perhaps, hereafter mention some more particulars of this crop, and the varieties in cultivation, but suffice it to say the whole have been good whilst moist weather continued, but since then all have failed.

DWARF KIDNEY BEANS have been very good, and with forced ones we have rarely been without them since the middle of December last year. This crop endures dry weather better than Peas, and there is a better prospect of seed ripening properly than was the case last year. There is a multiplicity of names; but an old liver-coloured variety and a dun-coloured one answer our purpose very well, and their bearing properties the present year are all that can be desired.

ONIONS.—I wish I could report as favourably of this crop, which, however, is not a failure: but a blight attacked ours about the middle of July, at a time when they seemed in vigorous health and likely to form excellent bulbs; the result was, they ceased growing and ripened prematurely, and very likely may not keep well, although there is no apparent sign of decay yet: but it is better for everything to attain its proper state of perfection. I believe Onions in a general way have suffered the same as those here, and are reported much worse in some places. The crop must, therefore, be regarded as only of a medium character, and perhaps below that.

PARSNIPS AND BEET somewhat variable, Beet especially; and Parsnips had in many instances to be sown over again. Cottagers usually excel in Parsnips, and they report their difficulty in getting a plant, and in most cases their roots will be small by being so late. Beet can hardly be known yet.

SCARLET RUNNERS.—Invariably good where a plant could be obtained, but there was a scarcity of good seed in the spring, which told sadly in many instances—portions of rows not growing, and had to be filled up as they best could; but where

anything like a healthy plant did exist the crop has been favourable. This is essentially a poor man's crop, and no vegetable yields a greater amount of food of a kind that is a general favourite than the Searlet Runner. Hot weather generally favours it, and wet cold seasons, like that of last year are in like manner adverse to it: hence, its failure last year and the little good seed that was obtained from it. The present year it has been good.

TURNIPS.—Common as these are, good early ones are as difficult to obtain as anything in the gardening way, and when hot weather sets in they are equally difficult to obtain in good condition. This year, however, they are good; and although field ones at the present time are suffering from the dry weather, it is likely they will quickly recover when a shower comes, the long dewy nights and moisture that may fairly be expected will promote a growth everywhere. Turnips may, therefore, be classed amongst the articles said to be good.

CELERY.—Though too soon to do more than merely note its appearance, hitherto it may be regarded as satisfactory. Rain, however, is wanted to promote its growth, and check any disposition dry weather may have on its prematurely running to seed—a propensity that Early Celery is very likely to have.

GARLIC AND SHALLOTS.—Both good, better than for some years past; but a different situation may have had something to do with this, and I may here observe that I have found these bulbs do better when a supply from a distance has been had for planting with. This remark holds good with other things as well as with Garlic and Shallots.

CUCUMBERS OUT-DOORS.—These have done badly, and plants dying off suddenly after bearing a very few fruit: hence they have been scarce, and we have been obliged to fall back upon the frame ones again.

VEGETABLE MARROW.—Unfortunately we did not give this useful article a good position, so it is hardly fair to find fault with it not doing so well as in some seasons. Mildew is appearing, and its usefulness is fast approaching a close.

GLOBE ARTICHOKE.—These were so much injured the last winter that but few plants survived, and these were necessarily late; they have, however, done pretty well considering, and we must protect them a little more the ensuing winter.

ASPARAGUS.—Not at all good; but ours is not a soil adapted to this vegetable. It is reported to have been indifferent in most places.

CABBAGE TRIBE.—These have been good. Perhaps they have been eaten a little more with caterpillar lately than they are in some years; but where they survived the winter, the growing spring season favoured their doing well.

MINOR CROPS.—Herbs of some kinds suffered by the winter, and have in consequence been more scarce; but where they were saved they have grown well. Our greatest loss was Fennel, and that, perhaps, from other causes than the hard weather. Thyme was much cut, but Sage escaped pretty well. Situation and other circumstances so much determine this that no general rule can be laid down. Parsley was scarce in early spring, and Camomile has perished to a great extent.

CROPS FOR THE ENSUING WINTER.—These vary according to circumstances, but in general are promising, and as they will continue to grow for a long time yet, it is too soon to pass an opinion on what they will likely become. So far all seems fair and promising with all the Broccoli and winter green tribe, and these embrace by far the greatest number of things wanted in winter. Endive is mostly too young to express an opinion upon, and Spinach has only lately been sown: these crops may, however, be the subject of a future chapter; suffice it, therefore, to say that at the present time they promise well.

GENERAL FEATURES OF THE SEASON.—The winter, as is well known, was very severe; the frosts, however, in spring were fewer than usual, and April was a dry month. May was fine and growing, and June on the whole favourable. July was also tolerably fine, but more rain fell that month than on the same in last year, or any season since 1855; but it was generally in such large quantities at a time as suffice the purpose of vegetation without impeding the growth or ripening of things requiring sunshine, and the copious rain we had favoured the growth of the various crops above enumerated. On the other hand, August has been dry and sunny, much more so than July, and crops of all kinds have hastened to maturity. The season may justly be regarded as a good one for vegetables, but a bad one for fruits, excepting Strawberries: I may possibly report on them hereafter. I may, however, say that bedding plants have done

well—better than in the generality of seasons. This, also, may be the subject of a separate article.

COMPARISON WITH OTHER SEASONS IN REGARD TO EARLINESS OR LATENESS.—This is difficult to define exactly; for at one period it may be twenty days or more behind, and at another time it may be scarcely any at all. Usually about the 1st of June there is not many days' difference between a late season and an early one; but before and after that time there is often greater difference. For some years I have regarded the coming into use of Searlet Runners as a test of the season, and find the present season to have been fourteen days earlier than 1850, and five or six days later than 1858; but this is liable to error, although taken from a number of examples which I have the means of doing. July last was a steady rather than a fast-growing month, and the same might be said of June. I shall, however, at another time give some notes on the weather, which, though I have no faith whatever on its being of the least use in prognosticating what the future may be, yet it may be interesting to compare with like reports made elsewhere, and its results on the crops of the season may be traced perhaps.

J. ROBSON.

THE BEST FLOWER-BEDS OF THE SEASON.

HARVEST is passed, the kindly fruits of the earth are gathered in, the husbandman sees with satisfied eye his empty fields and full barns and yards, and, if his heart be right, looks up in grateful thankfulness to Him "who giveth food to all flesh." Harvest is a time that not only interests the countryman but also those "in crowded cities pent;" and now that this object of general interest is successfully terminated, I propose that we all note the best arrangement of our flower gardens, and that every reader of THE JOURNAL OF HORTICULTURE send the planting of the very best bed in his or her garden. Let them give us the size and form of bed, the width of each colour, and the kinds of plants and the treatment, and the symmetrical arrangement of the plants. I infer that we should by these means diffuse much valuable information on flower-garden decoration.

Our king-bed is a centre one, a diamond 16 feet from point to point, the centre of which is Purple Nosegay; next, a row of the old Frogmore Scarlet; next, two rows of Flower of the Day, all edged with Lobelia speciosa from cuttings. The Geraniums were all struck in August, 1860, and the Lobelia this spring from store-pots kept over the winter. The whole forms one of the most effective beds, both in shape and colour, that could possibly be imagined. The plants descend from the centre in regular gradation, for I consider that the form and symmetry of a bed has as much to do with its effect as the harmonious blending of the colours.

Purple Nosegay blooms shy with us at the commencement of the season. Would one-year-old plants be better than those struck the previous year?—N. H. POWNALL, *Holme Pierrepont*.

"THE LUMPISH DAHLIA."

"HEAR, till him! Hear, till him!" the lumpish Dahlia! So a contemporary has designated this grand autumnal flower; and if the Oracle has spoken, who dare gainsay it?

"Hear, till him," ye florists! ye who many a long year have been working up your way from the star-shaped single "ragged garb" that once was known as the Dahlia to such exquisite flowers as Earl of Derby and Umpire! Go home, Messrs. Turner, Keynes, Cattell, and all your tribe. Make a bonfire of your stakes, roast or do anything you like with your tubers, cut up your stands for firewood, but let us see no more "lumpish" flowers!

And ye, poor purblind amateurs, who have hitherto thought that there was something fine in the sight of a stand of Dahlias with its varied and gorgeous tints and its massive-looking forms! Oh! how deluded have you been to think that there could be anything in the "lumpish" Dahlia!

But, seriously, do we not here trace the hand that ere now drew its pen across everything in the way of florists' flowers in the schedules of Chiswick days, and would exclude them now if it could? I think most of us can recognise the doer of these things. It was indeed an offence not to be forgiven that a show, and a successful one, should have been held entirely dependant on the florists; because, although many most beautiful plants were exhibited by Messrs. Veitch & Son, Bull, and others, yet

the schedule only noticed florists' flowers, and those who really came to see flowers could only have been attracted by them; and so, although it was called a Dahlia show, and although the cut blooms of this flower filled up half the space allotted to productions at the exhibition, yet it is pooh-poohed, and the whole thing ignored by this depreciating remark, "the lumpish Dahlia." What does that mean? Does it imply that everything massive offends the eye and is to be rejected in the floral world? Are we, then, to put away the grand *Cyanophyllum* and content ourselves with the little *Anætochilus*? Are we to see no beauty in the *Cyathæa* and other glorious tree Ferns, and admire only the light and airy *Adiantums*? Is there no beauty in the flowing outline of a three-decker, and only in the rakish schooner? No beauty in the stalwart form and brawny limbs of a Hercules, or only in the delicate outline of a Venus?

We ought not to be guilty of these things now-a-days; and there is the satisfaction that we may desire, that not all the ugly names in the world, or all the cold water thrown upon the subject, will ever deter the flower-loving public from admiring the noble autumnal beauty. We may certainly speak in high terms of the delicately formed maiden just coming out with the bloom of youth and beauty upon her, but may we not see an equally-to-be-admired beauty in the majestic form and matured charms of the comely matron? I think we may: and hence one can, I believe, truly appreciate the exquisite shape which now has been obtained through the successful hybridising and diligent culture of the Dahlia growers.

Containing, as it does, so many varied colours, tints, and shades, whether it be grown as a border flower or for the purpose of exhibition, the Dahlia is destined to hold the high place it has maintained for so many years.

The flower that was selected by the writer of the article in question as the one whose beauties as an exhibition flower were to eclipse it, is the Phlox. Now, I had ventured to hazard a remark in last week's JOURNAL OF HORTICULTURE totally at variance with this—viz., that the Phlox would never be a favourite exhibition flower. Nor, indeed, is it a very desirable garden one, as there is not one, I believe, which so soon feels the influence of wet. After heavy rain, when the Aster, Dahlia, and Gladiolus seem but little the worse for it, the Phlox-bed is strewn with the flowers which have been knocked off; while those that remain are flurried and damaged. In an exhibition, if shown in a cut state, before half the day is over they are hanging down their heads, looking the very picture of misery; while a bank of them, though beautiful, has a tame appearance.

Very similar is the Japan Lily. As a flower I have no greater favourite. Its exquisitely delicate colour, its shape, habit of growth and perfume, all combine to make it an especial pet of mine; but a bank of them in an exhibition is a failure. At the Crystal Palace it was tried once or twice, but it did not answer. It wanted variety, or brilliancy of colour; and so with the Phloxes at present. If cultivators can get greater substance into the flower and greater variety in colour, it will be a different affair.

There was another flower that received a castigation from the same hand—the Gladiolus. We were told the collection sent in by Mr. Standish wanted colour, and that none of them would be as effective as a garden flower as *Brenchleyensis*. Now, I think *Brenchleyensis* a very fine thing. I am rather proud of it, as it was raised in my own dear county (Kent), and I grew it for years before the Gladiolus furor had acquired such intensity, and before it was known beyond the confines of its native county; but no partiality could blind me to the fact that it is now far and away eclipsed, and this notwithstanding Mr. Beaton. Look at such kinds as the Rev. Joshua Dix and John Standish of Mr. Standish's breed; or Achille, Eugene Domage, and Ketterii, of French origin, and I think one cannot doubt, that when they become plentiful *Brenchleyensis* will hold a minor place. It is a question whether the Gladiolus will make an effective ornamental plant at all; but then this query is connected with all varieties, *Brenchleyensis* as well as any of the others.

In making these remarks my sole object has been to stand up for the honour of the craft. I am quite aware that we are looked down upon, and perhaps justly so; we have not mastered sesquipedalian names; we cannot discourse learnedly on scientific botany, and I give all honour to those who can, and only regret I am myself so far behindhand in these matters; but this one thing is pretty clear—that, whether rightly or not, we florists hold an important place in the minds of the floral public, and

are as necessary for the success of an exhibition as our fellow labourers; and as an attempt has been made to depreciate a flower on which we have bestowed no little labour, I could not forbear taking up the cudgels, and deny the propriety of designating our glorious Dahlia by the title of "lumpish."—*D., Deal.*

PINCHING THE SHOOTS OF DWARF APPLE AND PEAR TREES.

Will you inform me whether, in bush Apple and Pear trees, all the shoots should be pinched back to three leaves when they have made four; or, should a leader be left to each principal branch, to be cut back at the end of the season, and only the side shoots be pinched back?

Will you also inform me whether the above-named trees should be root-pruned biennially by cutting off the large roots, or should the trees be merely lifted and replanted without cutting the roots?—*J. H.*

[If your trees are under biennial removal, which they should be in a small garden, all the shoots may be pinched in the way you describe. If suffered to grow without being checked by removal, a leading shoot should be left to grow till the end of August. If the trees are biennially removed no large roots will be produced; the trees may be merely lifted and replanted.]

TIMBER FOR GREENHOUSE AND STOVE BUILDING.

YOUR correspondent Mr. John Stevens inquires about Pitch Pine for stove and greenhouse building. Having built a glass house last year with the rafters and some other parts of that material, I can inform him that there has been no difficulty about its taking the paint, or the resin exuding. On the contrary, it has been remarked by many as being the best work they ever saw. The wood is of greater weight, which may be a disadvantage in some cases. As to dry rot I can say nothing, my experience of it (Pitch Pine), for flooring in a dwelling-house is, that it is excessively durable. In a country house abroad belonging to my family, we have had it down for forty to forty-five years. I only speak as an amateur.—*E. B.*

ORCHARD-HOUSE FRUIT.

I READ in the Journal, page 477, a remark by Mr. Robson on the smallness of the fruit of Peaches and Nectarines on some trees in pots exhibited at the Crystal Palace, by some person he does not name. He says sarcastically, "As I expect they were representatives of orchard-house cultivation, it is likely the admirers of such things felt some little pride at the show they presented." The trees alluded to were poor specimens of orchard-house culture, and ought not to have had a place at the Exhibition.

Mr. Robson, it seems, did not see Sir Joseph Paxton's fine collection of fruit the produce of his orchard-houses. He should have made a proper use of his eyes; or he should go down to the head-quarters of orchard-houses at Sawbridgeworth. Mr. Rivers has never, I believe, exhibited orchard-house trees with fruit on, simply because, as I have heard him say, it is quite impossible to convey to any distance a fine tree of a Peach or Nectarine full of fruit just ripe or on the point of ripening, the only period that such trees can be seen in their full beauty.

I measured some Peaches at Sawbridgeworth a short time since, and I found some that were 9½ inches in circumference, and Nectarines that measured 7½ inches. The general crop of Peaches measured from 7 inches to 8 inches in circumference, and nothing could be more beautiful, and no wall fruit equal to it in flavour.

It is a common thing to find old gardeners that are not able to travel unbelievers in any improved mode of fruit culture. They have cultivated Peaches and Nectarines against walls till they think it impossible they can be grown in any other way. One smiles at the weakness of judgment too often the result of a life of routine; but to hear a young priggish gardener declare with a loud voice the impossibility of cultivating fruit in orchard-houses, so as to bring it to perfection, is something trying to the patience of a thinking man. No gardener should form an opinion on any mode of culture till he has seen it carried out by several good cultivators.—*CONSTANT READER.*

RED SPIDER.

THE preventive plan recommended by Mr. Rivers in your No. 24 being that which most gardening books have quoted as successful in keeping off the attacks of red spider is the plan which, among others, I have tried with most perseverance, but regret to say with the least success. I have covered the flues with sulphur; placed basins of sulphur on parts of them so hot as to melt the sulphur without producing the slightest impression on the insects, even on plants standing within a few feet of the melting sulphur. I had previously during the winter carefully painted the plants with a solution of Gishurst Compound 8ozs. to the gallon, and repeatedly during the growing season syringed them with the several solutions of Gishurst Compound, sulphuret of potash (which should not be used where there is white-lead paint), and aloes.

To show how utterly sulphur, as recommended by Mr. Rivers, may fail, I will state my experience of its use in a two-light Melon-frame. I began by carefully painting the whole of the interior of the frame with soft soap and sulphur so thoroughly that even now the sides of the frame are yellow with sulphur. Afterwards the plants were daily examined, and immediately upon the discovery of the insect a zinc pan, 18 inches by 12 inches containing 3 lbs. of sulphur, was introduced and kept in the sunniest part during the remainder of the season. In spite of these precautions every plant was sucked dry by red spider; the leaves were soon covered with their fine web, and dead before the fruit ripened.

I have arrived at the conclusion that sulphur without soap is useless against red spider, and that soap without sulphur is nearly if not quite as efficient as the two combined. But I have found no remedy permanently successful where from any cause I could not secure plenty of moisture combined with healthy action at the roots; and any one who wishes to get rid of red spider must look to them.—E. T., *Solihull*.

NATURAL PHENOMENA IN AMERICA.

Register.—Of the leafing and blossoming of some of the principal shrubs and trees, made at Belfast, Maine, latitude 44.23° N., longitude 69.8° W., during the year 1861.

Names of Plants.	In Leaf.	In Blossom.
Apple tree.....	June 2nd.....	June 11th
Apple, crab.....	May 29th.....	June 5th
Blackberry common.....	May 24th.....	June 27th
Balm of Gilead.....	May 18th.....	May 13th
Cherry, tame.....	June 6th.....	June 2nd
Cherry, wild.....	May 23rd.....	June 5th
Currant, red.....	May 13th.....	May 29th
Currant, black.....	May 15th.....	June 4th
Chokecherry.....	May 15th.....	June 10th
Chestnut, Horse.....	May 21st.....	June 12th
Elder, pink blossom, common.....	May 15th.....	May 31st
Gooseberry, common.....	May 9th.....	May 28th
Gooseberry, English.....	May 9th.....	May 26th
Lilac.....	May 23rd.....	June 10th
Ox-eye Daisy.....	Early.....	June 22nd
Pear, wild.....	May 22nd.....	May 31st
Plum, common.....	June 5th.....	June 10th
Peony.....	May 19th.....	June 19th
Rose, common.....	May 24th.....	June 17th
Raspberry.....	May 10th.....	June 14th
Strawberry.....	Earliest.....	May 7th
Spiraea.....	May 10th.....	July 17th
Snowdrop.....	May 23rd.....	July 10th
Snowball.....	May 26th.....	June 20th
Willow.....	May 16th.....	May 15th

Remark.—Recorded in leaf when the first pair of leaves have fully expanded; in blossom, when in full flower.

Record.—Of the first arrival of some of our principal migratory birds made at Belfast, Me., 1861:—

Robin Redbreast arrived, March 30th	Eave Swallow arrived, April 27th
Ground Sparrow " March 27th	Plover " April 27th
Wild Geese passed over-head, March 26th	Yellowhammer " April 28th
Brown Blackbird arrived, April 5th	Bobolink " May 10th
Bluebird " April 19th	Chimney bird " May 13th
Barn Swallow " April 27th	King bird " May 15th
	Humming bird " May 21st

Notes.—The Robin is one of our most common-feathered friends, and indeed in many cases he may be said to be more than half domesticated; for when not disturbed they will make their habitation in the trees shading the dwellings, in the outbuildings, and even the portico over the door where there is passing in and out all of the time. They are the least inimical and the most beneficial to the farmer of any of the feathered race, ridding his gardens and fields yearly of thousands of injurious insects. The Sparrow is our first feathered visitor, heralding the approach of

spring, while the snow yet covers the ground and the flowers are far in the future. The wild Goose does not remain here, but passes overhead to their breeding grounds in the north and north-east, in the English dominions. The brown Blackbird is not seen here, but a short time after their arrival. The Bluebird remains here during the summer. The Barn Swallow remains here in great numbers, and after breeding seek a warmer climate; their food consists entirely of insects, and they destroy many thousands of the smaller gnats, moths, flies, &c. The Plover is rather scarce; it breeds far upon elevated smooth lands and grass fields. The Bobolink in common breeds here, and returns in early autumn to the southern rice-fields, where it is said to be very destructive. The King bird is common in our orchard; breeds here, and with Swallow, is very useful in keeping hawks, &c., away from the farmyard.—G. E. BRACKETT, *Belfast, Maine*.—(*Genesee Farmer*.)

HOTBEDS WITHOUT MANURE.

THE method which we here give is that of F. Bouceune, published in the *Revue Horticole*, and is highly recommended by him for its cheapness and efficacy.

It is, to use his own words, as follows:—"Dig, first of all, a trench 10 feet long, 5 feet wide, and 20 inches deep. This trench forms the bed for the materials. If, however, you wish to raise the bed above the level of the soil, you can, with some stakes and old boards, build a kind of box which will hold it. This done, we strive to collect together on the spot the necessary materials to construct the bed itself.

"Procure, 1st, 300 lbs. to 500 lbs. of straw, or of old hay; or it may be of litter, or of well-dried moss. 2nd, One and a-half to one and three-quarters bushels of powdered quicklime. 3rd, One pound four ounces muriatic acid, diluted in twenty gallons of water. 4th, One and a-half pound of saltpetre, dissolved in twenty-seven gallons of water. 5th, A new broom, or one nearly new.

"Spread over the bottom of the trench a layer of straw, or whatever the material may be, about 8 inches or 10 inches thick. Sprinkle it with the quicklime. Dip your broom into the vessel containing the muriatic acid diluted with water; then sprinkle this first layer, after which you shall make a second one of the same thickness. You shall scatter upon it the lime, and you shall sprinkle the diluted muriatic acid in the same manner as before.

"Make at last a third layer of straw, of less thickness than the first two—say 4 inches or 6 inches only, and wet it with the water in which you have dissolved the saltpetre; but shake up the bed often, and pour it upon it, so there may be absorption by the lime, which will evaporate a good part of the liquid in parting with its heat."

After this operation, the frame can be placed upon the bed, a few inches of earth spread inside, and as soon as the extreme heat has subsided, which will be in two or three days, it will be ready for use. Beds formed in this way will maintain their heat from four to six weeks.

WINTERING GERANIUMS IN A COLD CONSERVATORY.

LILIUM LANCIFOLIUM AFTER FLOWERING.

WILL you inform me if Scarlet Geraniums Tom Thumb, Masterpiece, &c., should be cut down or only pruned back a little before being put away for the winter? The only place to keep them until the spring being a cold conservatory which there is no means of heating, and where they will be only just free from frost. Should the leaves be stripped off, or should they be put away as they are? and may they (for convenience), be taken out of their pots and packed closely in a box for the winter, and if so, should the roots be trimmed or the old soil shaken out? What is the proper treatment for *Lilium lancifolium* after flowering?—A. H.

[According to the way you are going to winter your Scarlet Geraniums, the best way is to cut them back to the wood of last year; leave no leaves on them, and shake out all the old soil from the roots, then plant them in loose soil—that is, not too dry; then water them to fill up cavities and keep out air, and after three days cover the mould in every part with 1 inch deep of soil or sand, or something as dry. The under soil will do for the roots for three months, but examine the plants on a certain day in each month as long as they are there. The twentieth day is our day and we found it a lucky day for looking over winter store of old plants.]

If the Lilliums are in the borders, the proper way after flowering is just the same as for the common Lilac—that is, to remain without a thought about them till next blooming time, for the speckled and white common ones, called Japan Lilliums, are just as hardy as the common Crocus. But if they are in pots, let the leaves and stems be kept fresh as long as they will keep so, and when they turn yellow cut them off and bury the pots in a border out of doors till March or thereabouts, then cultivate them as before. As this is the first time that these Lilliums have been recommended to be kept in winter buried in the open ground, let us observe the plan is founded on their perfect hardiness in England, which was never so thoroughly proved as last winter. Then any hardy “root” is more safe in the open ground than anywhere else, and when the pots are not very large the best way is, as soon as the flowers are over to turn the balls out where they are to winter, and let them take their chance of the autumn rains.]

A SPAN-ROOFED HOUSE, ITS HEATING AND USES.

I HAVE a span-roofed house, 30 feet by 14 feet, sides 3 feet 9 inches high, of brickwork, with 2 feet of glass, and the ends nearly north and south. I want to shelter bedders and force early in the spring. Will you kindly give your opinion how the place is likely to succeed, or say what would do better?

I purpose to divide the house in halves with glass; beds 5 feet wide, 15 feet long, and 6 inches deep, resting on rough tile 2 feet off the ground, on nine-inch brickwork on each side of a two-feet-six-inches path in first portion of the house. Would a brick flue passing round the house and under both beds give heat enough for the purpose? and what amount of heat ought I to obtain? Would nine-inch drain-pipe used as a flue increase or decrease heat? or would any other mode of heating do better at the same or less expense? Could I fit up the house in any other style to be more useful for the same money?—A VERY YOUNG GARDENER.

[A span-roofed house of the dimensions given may be made very useful; but there is certainly some error in describing the intended bed as only 6 inches deep. However, assuming it to be 30 inches, or 3 feet, the difficulty in giving an opinion is much reduced: still, we have many things to surmise which makes it advisable to give a qualified answer—one based on general terms. Thus, where firing is cheap, a flue is the cheapest of all modes of heating, and for a house as large as yours we would have portions of it twelve-inch Portland cement pipe well set at the joints, and the remainder brick, with firebrick covering at the part nearest where the fire enters.

A considerable portion of the flue must be open to the air of the house, so as to heat it when required; and it would be better if the bottom heat wanted for forcing could be supplied by tan or other fermenting matter independent of the flue. This, however, cannot well be done when the flue goes all round the house as you propose; but assuming you merely want the house in question to propagate bedding plants in during the spring months, the following contrivance will serve your purpose, perhaps.

Instead of dividing the house into two compartments, let the pipe flue run up each side underneath what you call your side beds, and let one of these be made into a stage or platform for plants; the other side, or a part of it, we would convert into a propagating-pit, by covering the flue in the manner described at page 178 for covering hot-water pipes, with brickbats, slates, and sawdust, and have slight glass ashes to cover these fitting close at the back, front, and ends. This pit need be not an inch deeper than is necessary to plunge the cutting-pots in; and you will here have all the advantages of a nurseryman's propagating-house, while the other portions of the house may be more liberally supplied with air. We would advise the west side to be converted into the propagating department, as less likely to suffer from sunshine; and cuttings of most ordinary things root freely in such a position, and may be gradually hardened off.

A flue is much cheaper than hot water; and we know of more than one house heated by cement flues which answer admirably, the ends and turnings being of brickwork; and we have been told that a good specimen of Portland cement piping has been heated almost to a white heat without damage to it.

Your plan in every other respect seems good; but if you adopt the suggestion above you need not have the partition dividing your house into two, and the portion used as a propagating department may be made removable, so that when not wanted

as such it may be a span-roofed plant-house, uniform in appearance, with a path up the middle, and door at one end. Your own ingenuity and the advice given on other structures of a similar kind will supply all the rest.]

ORCHARD-HOUSE CULTURE BY AN AMATEUR.

I BUILT myself an orchard-house last summer 23 feet long and 10½ feet wide, 9 feet high at the back and 1½ feet in front, with sashes hung from the plate to open, and a ventilating drop shutter the length of the house under the sashes, with ventilators on the top and back, so that I can give abundance of air. It is a lean-to against a south brick wall, with the door and west end glazed. I had Denniston's Superb Plums ripe in the second week in July, and Green Gage in the third. Empress Eugenie Cherries in the second week in May, quickly followed by the Elton. My Pears have succeeded admirably, they have been loaded with beautiful fruit. One tree, the Colmar d'Été, three years old, brought two dozen to perfection, and were ripe by the middle of August. The fruit, in general, are one month earlier than those out of doors. I have a Golden Drop Plum with one half in the house and the other out. The fruit inside are now ripening, and of fine size; those out are not half the size. My Peaches, Nectarines, and Vines are making good ripe wood, and I anticipate a splendid crop next season. I was very much annoyed with ants. I found about half a pint of soot laid on the top of the pots started them off.

I find my orchard-house is the only one in this county, and I hope it will be the means of introducing them, as I am quite certain they must become general. I have had a great many of the gentry to look at it, and all express their astonishment to see trees full of fine fruit, and looking so remarkably healthy in pots.—AN AMATEUR, *Uppingham*.

THE PRIZE AT WORKSOP FOR VINES IN POTS.

I RECEIVED your Journal this morning containing an answer to my Vine question, which you have quite mistaken. I wished for your opinion on this point: The schedule states, as per enclosed piece of paper, “for the best three Vines in pots.” It does not state they should be grown in pots, or that they should be pot Vines. Mine were decidedly the best—in fact, the others were very inferior and far from clean. Mine were fairly grown in pots and so exhibited, as I before stated to you. Had they been plunged and rooted from the top of the pot they might have objected to give me the prize; but as I complied with the schedule I cannot see how it is possible for them to withhold it. Dr. Lindley has decided according to the schedule entirely in my favour. He says I can undoubtedly claim the prize, and such is my own opinion.

My Vines are now at this time fit to grace the table of any exhibition, nearly every leaf being in perfect health. I can prove they never saw an open border, or that they were never plunged, although, as I before stated, they had partly grown through the bottom of the pot. One had several parts of roots to some length, but not the main roots or tap root; and I must say, as an old London exhibitor, if all plants that root through the bottom of a pot are to be disqualified, above one-half the plants exhibited would be served so, especially the Chrysanthemum. But it was not on this point I wished for your answer, or I should have headed it such. It was respecting the disqualified card and the schedule. I would feel greatly obliged for your opinion whether, according to these, I cannot claim the prize.—EDWARD BENNETT, *Osberton Hall, Worksop*.

[We did not misunderstand the question, and we abide by our answer at page 481. When a society offers a prize “for the best Vines in pots,” it is always understood that it is for Vines grown in pots. The question, then, is simplified to this—Were Mr. Bennett's Vines so grown? He says they were; that they were never even plunged, but that several parts of the fibrous roots, but not the main roots, had grown to some length through the bottom. If the holes had been enlarged to facilitate this growing out through the bottom; or, if the roots, without such an enlarging of the holes, had grown to such an extent in the material on which the pots stood as to give them an advantage over Vines of which the roots were entirely confined within the pots, then it was quite within the province of the judges to disqualify them.

The sole intention of a prize for Vines grown in pots, is to reward the skill which produces fine Grapes from plants with a very limited amount of root-pasturage; and this object would be entirely frustrated if Vines were allowed to carry off the prize the roots of which had had the advantage of much pasturage outside of their pots. We do not say that Mr. Bennett's had such advantage, because we do not know from inspection either the extent of the roots outside the pots, or the pasturage these escaped roots obtained.—EDS. J. OF H.*]

SEEDLING CYCLAMENS.

My gardener in weeding his border found two seedling Cyclamens, of which I enclose a leaf. The tubers are about an inch in diameter. Will you kindly say what variety they are? What puzzles me is how they managed to grow there, for from the size of the tuber they are more than this year old, and must have stood the frost of last winter. I am the more puzzled because Cyclamen europæum will not grow out of doors with me. I have tried various bulbs of it, one an immense one, but not one ever flowered or survived its first winter. I have several of Henderson's Cyclamen persicum in pots in my greenhouse. It is possible, but not probable, that a seed or two from them might get into the garden soil; but even in this case how is it that the seedlings stood the very severe frost of last winter?—W. X. W.

[We have such findings in all our borders. Your Cyclamen appears from the leaf to be that of a true coum; but no one can now judge a Cyclamen by the leaf, they are so interbred with Mr. Atkins' seedlings. The way it comes to pass is this—a seed drops in a pot of Cyclamens and grows on for a season; next year the balls are reduced, and new pots and more soil are given. The refuse from the potting-bench is wheeled on to the borders, and little bulbs like those of Cyclamen seedlings spring up like weeds. If it is the true coum it might have been buried 6 inches deep before the last great frost, and if so the frost would not harm it. The spring dressing or digging brought it nearer the surface—at all events there is nothing singular about Cyclamens springing up in gardens where old plants of them are grown.]

BUDDING ROSES.

I HAVE this year put in several hundred Rose-buds, having lost my whole collection by the frost on Christmas morning, and have been pretty successful; but last week I was looking at the buds put in by a friend's gardener, and find all, to the number of about two hundred, taken well. This leads me to think that with some of mine I was not right in taking out the wood, and hear that many are almost sure of success. Now, am I asking too much in requesting a hint so that next year I may be as successful as my friend's gardener?—P. H. J.

[Much of the success in budding Roses and other plants depends on the condition of the stocks, and on the kind of weather for the three weeks following the operation. But there is one thing which spoils good budding more than any other, and that is the practice of cutting off a portion of the shoots just before or after the budding is performed. The idea is that the cutting away of so much of the top of the shoot will throw more strength into the remaining part and the newly inserted bud. The idea is very good and very bad at the same time. The first immediate result of cutting off part of a young growing shoot is to stop the circulation for a certain time; during that certain time the new bud fails for lack of moisture, or, if it survives till the flow is on again, the natural buds deprive it of its share, as they are greedy for action, while the new one is hardly ready to work. Therefore, if you do not cut a shoot 3 inches before it is budded, never cut it till three weeks or more after the bud is put in.]

NEW AND RARE PLANTS.

ARNEBIA GRIFFITHII (Griffith's Arnebia).

Nat. ord., Boraginæ. Linn., Pentandria Monogynia.—First discovered by the late Mr. Griffiths in Cabool. The genus is closely allied to Lithospermum. Flowers rich tawny yellow,

with five remarkable deep purple spots, which gradually disappear. These spots are alleged by the Caboolies "to be the impressions of the five fingers of Mahomet."—(Botanical Mag., t. 5266.)

ARISEMA PRÆCOX (Early-flowering Arisema).

Nat. ord., Aroidæ. Linn. Monœcia Monandria.—"A native of Japan, in the Goto Archipelago." This pretty plant appears easily cultivated, producing its arched sp the strikingly striped with green and white; and with dark purple lips, early in the spring if removed from a cool pit to the stove.—(Ibid., t. 5267.)

SPIGELIA SPLENDENS (Brilliant Spigelia).

Nat. ord., Loganiaceæ. Linn., Pentandria Monogynia.—Nothing is known of the history of this beautiful plant; but as it requires stove culture, and others of the same genus which require similar treatment are from Mexico, most likely it is a native of tropical South America. "Nothing can exceed the deep rich crimson of the spike."—(Ibid., t. 5268.)

HOYA SHEPHERDI (Mr. Shepherd's Hoya).

Nat. ord., Asclepiadacæ. Linn., Pentandria Digynia.—It probably came from the Himalaya, but its native place is not certainly known. Its flowers, rosy white, are not conspicuous. It flowered at Kew in June.—(Ibid., t. 5269.)

BILLBERGIA BIVITTATA (Ribbon-leaved Billbergia).

Nat. ord., Bromeliacæ. Linn., Hexandria Monogynia.—A pretty plant, most probably a native of South America. Flowers white. Leaves "under-surface dull brown, upper green, with two broad, bull, longitudinal bands, which pass into dull red at the base."—(Ibid., t. 5270.)

CRASPEDIA RICHEA (Glaucous-leaved Craspedia).

Nat. ord., Compositæ. Linn., Syngenesia æqualis. It has also been called C. glauca and pilosa; Richea glauca and Podosperma pedunculare.—A very remarkable hardy annual from south-eastern Australia, "by no means unornamental." Its flowers are yellow, in dense globose heads, and open in June.—(Ibid., t. 5271.)

POMOLOGICAL GLEANINGS.

CHAMPION HAMBURGH GRAPE.—Your correspondent, Mr. J. B. Whiting, must be labouring under some mistake when he says in his communication in last week's Journal, that he cannot see any difference between Champion Hamburg and the ordinary form of Black Hamburg, as I have always found them to be perfectly distinct. There is a variety called Champion Hamburg which has large, round, flattened berries of the shape of an Orange, and this I have always regarded as the same as Mill Hill Hamburg; but there is another with a large oval berry, and which appears to me to be the Black Champion of Dr. Hogg's "Fruit Manual," which is quite different from every other Grape. I have grown it for several years, and it is not only very much larger in the bunch and berry than the Black Hamburg, but is also about a fortnight later, and very hardy.—CEPA SUB SEPE.

ST. LAURENT MUSCAT GRAPE.—How is it that the Muscat St. Laurent Grape is so little known or written about? If it continues to be with me what it has been the last three years, I should say it is a very valuable one. Each year I have ripened it without fire heat, before or quite as soon as the Sweetwater. I have asked several people to taste it, and every one pronounces it delicious, and with a decided Muscat flavour—which it certainly has; but no one seems to know it.

POMOLOGICAL CURIOSITY.—One of Nature's freaks has just been submitted to us by Mr. Rivers, of Sawbridgeworth, in the shape of a large and handsome Peach raised from the Pitmaston Orange Nectarine. We were aware that Mr. Rivers had been experimenting on the different races of Peaches and Nectarines, and that he had been successful in raising Peaches from Nectarines, and Nectarines from Peaches; but it was not till this season that we saw the result of his labours. His Peach No. 8, raised from Pitmaston Orange Nectarine, is a fine thing; it is rather above medium-size, skin with lemon-yellow ground, coloured where exposed to the sun with a crimson cheek, and thus covered with dark mottles and broken streaks of darker crimson. The flesh comes clean away from the stone, and is very tender, melting, and very juicy, deeply stained with dark red round the stone. The juice is very abundant and of very rich flavour, with a good deal of the Nectarine aroma about it. The leaves are crenate and have kidney-shaped glands, and the flowers are small.—H.

* Since the above was in type we find that Dr. Lindley has retracted his too-hastily-formed opinion; and the judges say that there were more roots outside than inside Mr. Bennett's pots.

WHAT TO LOOK FOR ON THE SEASHORE.

(Continued from page 182.)

CRUSTACEA—(continued).

WITH regard to the five classes of Crustacea mentioned in a foregoing chapter—namely, Cirrhopoda, Entomostraca, Xiphosura, Edriophthalmata, and Podophthalmata, we may again remark that it will be by no means necessary, nor would it, indeed, be consistent with the design and limits of this work, to treat them with any degree of elaborate arrangement or minute detail; inasmuch as they are composed of such countless varieties of species, the classification of which is so intricate, that the mere enumeration of them would confuse and perplex the tourist beyond measure. Those who feel disposed to follow up more closely their study of this most interesting branch of natural history, will find ample materials by a reference to the able and extensive treatises devoted to the subject, the most valuable of which, perhaps, are Mr. Milne Edwards' "History of Crustacea," and Professor Bell's work on the "British Stalk-eyed Crustacea." It will be sufficient for us merely to touch very briefly upon the less familiar members of this large family, and, whatever may be our temptations to digression, to keep in view the title attached to these papers, confining ourselves as closely as may be to objects really to be met with "on the seashore."

Of the first class, the Cirrhopoda, we have already spoken; let us then take a glance at the three following classes, reserving the greater space for the last, or fifth, the Podophthalmata, or "Stalk-eyed Crustacea," in which we shall meet with the Shrimps, Prawns, Crabs, and Lobsters, which are familiar to every eye, and to be met with on every coast.

THE ENTOMOSTRACA, OR SHELL INSECTS.

These creatures may be truly "named by the name" of Legion, swarming in incalculable quantities in all waters, fresh as well as salt, in inland ponds and ditches, and in the rock-pools on the seashore. They are, in most instances, so minute as to render the aid of a microscope necessary for their examination. They vary considerably in the number of their legs and in other particulars. Selecting the *Nebalia*, however, as a general type, we shall not deal further with their variations.

The *NEBALIA* has two pairs of large ramiform antennæ and twelve pairs of feet, eight pairs being branchial and the remaining four ratory. It is furnished with a large carapace enclosing the head and a portion of the thorax almost as in a bivalve shell. The *Nebalia* is by no means uncommon on the south-western and western coasts of England; it is found beneath stones that lie in the mud amongst the hollows of the rocks. Many of these little creatures are parasites, having a mouth destitute of any organs fitted for mastication, but provided instead with an apparatus adapted for sucking; hence they are called *Siphonostoma* or *Siphon-mouthed*. Their shell is of a single piece and remarkably slender. These attach themselves to, and prey upon the skin of many kinds of fish, in consequence of which habit they have acquired the vulgar name of "Fish-lice."

The third class, XIPHOSTRA, from two Greek words signifying "a sword" and "a tail," should be passed over entirely as completely out of our range, consisting as it does but of one species, and that a stranger to our coasts. Its size and strange formation, however, must plead for a passing observation.

THE LIMULUS, OR KING CRAB, is one of the largest of the Crustaceans, sometimes measuring two feet in length. It for the most part inhabits the tropical seas, and is found near the shore. The body is composed of two divisions, the anterior one being a crescent-shaped piece, or carapace enclosing the cephalo-thorax and its organs; the posterior segment being of a somewhat hexagonal form, formed by the coalescence of the abdominal segments. From the posterior extremity of this second division of the body projects a long, powerful, horny spike, or tail, resembling a sword. This spike is used by certain savage tribes for spear-heads and arrow-points. The upper surface of the body is very convex, whereas the lower surface is, on the contrary, extremely concave, the hollow formed in the centre containing the creature's feet. In China the King Crabs' eggs are eaten, but their flesh is thrown to the pigs.

We will now proceed to the fourth class, EDRIOPHTHALMATA, or Crustaceans with immovable eyes. These creatures always have the head distinct from the thoracic segment, never assuming the single formation known as the cephalothorax, so commonly found in other Crustaceans. They have two eyes, which

are neither stalked nor moveable. These eyes usually consist of a quantity of simple eyes clustered together in one spot, although some species possess regular compound eyes. The mouth is provided with jaws and with a single pair of foot-jaws, which are commonly followed by seven pairs of legs, to which the branchial organs are attached.

The most familiar type of this class is the common *Talitrus*, or *Sand-Hopper*. This may be seen by myriads on every sandy



beach of England. If you observe attentively the edges of the waves, you will perceive a sort of misty cloud arising close to them on the shore, and rising to the height of several inches. On closer examination you will discover that this mist arises from the gambols of these Sand-Hoppers, or, probably, from continuous swarms of them started by your footsteps. Although the size of these creatures is so small, their muscular power is extraordinary, rivalling that of the flea. They can leap several inches into the air, and burrow into the soft wet sand with amazing rapidity. The Sand-Hoppers may be found in abundance swimming about in the rock-pools, or concealed beneath masses of seaweed. You may secure them also by digging into the sand and pouncing on them before their alarm at this sudden irruption has sufficiently subsided for them to make their escape. The chase is rather exciting, as they leap and hop away with strange activity. The *Talitrus* establishes its home on the shore, generally buried in the sand, and its principal article of food is seaweed.

We come now to the fifth, and by far the most important class of Crustaceans, called PODOPTHALMATA, or STALK-EYED, to the individuals composing which we shall have to devote more particular attention, following in our examination of them the clear and able guidance of Professor Bell as to matter though not as to method. We shall commence with

THE COMMON SHRIMP (*Crangon vulgaris*).—The common Shrimp belongs to the order *Decapoda*, or *Ten-footed*, and to that of *Macroura*, or *Long-tailed*. The carapace and abdomen are smooth with the exception of three spines, one on the thorax behind, and one on each branchia. The eyes are closely approximated, naked, and protruding. The anterior legs are smooth and large, having a compressed hand furnished with a curved and moveable finger; the remaining legs are filiform and elongated. The abdomen is rounded and tapers gradually, the false feet attached to it being very long. The tail is narrow and pointed in the central plate. The total length of the Shrimp from the eyes to the extremity of the tail is about two inches and a half. In colour it is of a greyish-brown, dotted all over with dark brown, and does not become red by heat. The red Crustaceans sold commonly as Shrimps being, in fact, young Prawns. As Professor Bell states—"In some parts of the coast, as at Poole, this species is comparatively rare, and is not used as food. The smaller *Palaemonidae* (*Prawns*), are here called Shrimps, and when of small size and sold by measure they are called 'Cup Shrimps'; the present species is called the Sand Shrimp, to distinguish it from the smaller Prawn, which is called the Rock Shrimp." In some parts of Ireland also this species is styled the Grey Shrimp, and is held in very slight regard, whilst the common Prawn is called a Shrimp.

The Shrimp is an extremely prolific creature, and produces an enormous number of eggs, which it carries about with it until the period of hatching arrives, when the parent Shrimps come up to the mouths of the large rivers, even ascending them to a considerable distance and deposit their spawn. Shrimps are caught by means of peculiarly-shaped nets, which are pushed forward by the fishermen along the bottom of the sea, and into which the frightened creatures run. They are frequently to be found, however, in pools in the hollows of the rocks, and if any be required as specimens, may be easily captured by passing a gauze net rapidly through the water.

The flesh of the Shrimp is considered particularly wholesome, although in some cases it has been stated that nausea has resulted from eating them, similar to that occasioned so frequently by an indulgence in Mussels.—W.

(To be continued.)

WINTERING GERANIUMS AND FUCHSIAS.

Will you inform me if Scarlet and Cerise Geraniums in pots should be cut down before housing for the winter, or left untouched till the spring? They can only be kept on shelves on a large staircase-landing where no heat can be given. If they should be cut down, should it be done at once, that they may break before frost comes? And should Fuchsias (to be kept during winter in same place) be cut down now, or in the spring?—A LADY.

[Under the circumstances the best way is not to cut back the Geraniums till the frost comes, if it should not come till December. Meantime keep the pots half dry, or give no more water than will keep the leaves from drooping. Cut off all the young wood of this season, and keep the pots nearly dry, but not quite dry all the winter. It is best if the plants make no effort to grow till February. The Fuchsias should be treated the same way.]

BLACK DAHLIA.

For the sake of contrast and variety in a small collection, I have long felt the want of a truly black Dahlia, as black or blacker than some of our Hollyhocks, for instance. I have at last had my wish gratified, temporarily at least, by the bursting of a well-formed flower of inky hue on a plant of Dandy. Could you or any of your Dahlia-growing subscribers, inform me if there would be any use in saving the seed from this flower with a probability of its producing black varieties?—A SPORT-ING DANDY.

[Not the least. In the first place, we have had flowers nearly black—Lord Fielding and Midnight, so dark at any rate as to answer all the purposes of contrast; and as Dandy is a fancy with maroon stripe, it is probably that colour that has run into the petals, but so like the Irishman's horse—when caught it is no good, for no dependance can be placed on seed. You are just as likely to obtain a white from it as a black, for in these florists' flowers there can be no certainty of seed. A sport is perpetuated by cuttings; and if all the flowers on your plant had come dark there might be a probability, though not a certainty, that you might perpetuate a dark Dahlia. Would not Midnight answer all your purpose? It is a little shaded, but its colour is very intense.]

CULTURE OF OUVIRANDRA FENESTRALIS.

I HAVE an Ouvirandra fenestralis, but am unable to grow it well. I can command water, &c., and any temperature, and have tried it in various ways with the same result—viz., leaves $1\frac{1}{2}$ inch long, when they begin to decay, and are growing smaller. I have not seen it well done this season in any nursery or public garden in the neighbourhood of London.—H. H. O.

[All you can do with the Ouvirandra now is merely to keep it at rest till the winter is over—say at about 60° to 65° of temperature, with only 3 inches of water above the lace-like leaves, and the surface of the mud bottom in which it roots to be well covered with broken shells or spar gravel, and a handful of the same placed round the neck of the plant to keep it steady. In March you should take it out and replenish your case with fresh soil, gravel, or shell, and set it to work afresh at a temperature of 70° .]

THE FLORIST.*

It will be seen by our advertising pages that this popular periodical, which has been the exponent and depicter of the floral branch of horticulture during a period of fourteen years, has passed into a new management. The work will continue in its present form till the end of the year; but with the 1st of January of 1862, we are informed this long-established favourite will assume a new and enlarged form, and instead of one it will be illustrated with two plates, and all without any addition to the former price. Many other new features are in contemplation, which we understand will be duly announced.

* *The Florist, Fruitist, and Garden Miscellany*, conducted by Robert Hogg, LL.D., F.L.S., and John Spencer, F.G.S. London: 162, Fleet Street. Price One Shilling monthly.

We cannot but think that with such a change in its form, the "Florist" will become one of the marvels of modern periodical garden literature.

THE SINGAPORE AGRI-HORTICULTURAL SOCIETY.

THE first exhibition of the Singapore Agri-Horticultural Society took place on the 27th July. The tent containing the plants was well filled, and was gaily decorated with bouquets of cut flowers from the Society's garden and from exhibitors. Among the contributions of the latter were several very tastefully-arranged vases, containing Orchids and other rare and showy varieties of flowering plants. There was a good display of plants in pots, a number of which were sent by natives. The Dahlias and Chrysanthemums were in full flower and very healthy. The vegetables exhibited were good, and consisted of Cabbages, Lettuce, Endive, Celery, Capsicums, Cucumbers, and Pumpkins. Two collections of English Green Peas were on the table, and were quite equal to home-grown. A pot of fine Parsley also testified to what can be done in the way of growing English vegetables in the tropics.—(*London and China Telegraph*.)

SKELETONISING.

THE art of "skeletonising" consists in promoting the decomposition of the cellular structure of leaves and certain other parts of plants, without breaking or injuring their woody fibre, which is done very easily and cheaply by macerating them in water. For convenience of illustration, let us select the seed-vessels or burs of Stramonium, or Jamestown weed, which are now just in the right condition, being partially open, but not at all, or very slightly, dried or faded in colour; place these in a basin or bucket, and pour on them sufficient hot water to cover them completely, and set them aside. Cold water will answer the purpose, but not so quickly. After about three weeks, during which time a little fresh water may be occasionally added, these will be softened and ready for the removal of the cellular portions. This is accomplished by scrubbing with an old tooth brush or shaving-brush, allowing a stream of water to run over them during the process. The seeds are to be taken out, and the water allowed to run through the bur, but without removing the internal structure in which the seeds are deposited; in this way, a perfect skeleton may be produced, showing all the woody portions, including the external prickles, and when bleached, having the appearance of delicately-carved ivory.

A variety of seed-vessels may be prepared in this way, of which the Poppy-head is one of the prettiest; it may be readily obtained in a suitable condition from the druggists; the internal membranous portion containing the seed requires to be removed, after the requisite maceration in water, by a small opening in the side. An offensive odour arising from the decomposition of the cellular structure and its contents is one of the discomforts of this process, but is amply repaid by the beautiful resulting skeletons. In English "bouquets" of these preparations, there are some seed-vessels not often met with in this country, of which the Henbane (*Hyoscyamus*) is beautiful.

The preparation of leaves affords a greater variety of forms than of any other portion of the plant. Only the leaves of trees and shrubs, as far as I know, will furnish a skeleton; those of annual and herbaceous plants seem to lose their structure entirely by maceration. Some of the most transparent and delicate leaves and Ferns may be bleached by putting into the bleaching solution without previous maceration, but must always be previously faded, so as to have entirely lost their greenness. Among the best leaves for skeletonising are those of the Ivy, the Linden, the Elm, the Poplar, the Holly, the Pear tree, the Chestnut, the Sassafras, the Magnolia, the Althæa, and no doubt hundreds that have never been tried. The Oak would furnish a beautiful skeleton, but requires from eight to twelve months' maceration, whilst most of the others named are sufficiently decayed in from one to three months. The leaves should be free from insect bites or other imperfections. In cleaning them, it is best to lay them upon a smooth board, turning them over from time to time, and very carefully removing the decayed parts with a soft brush. It has been observed that Ivy leaves are best prepared after maceration by tearing off the two outer layers of skin, leaving little else but the skeleton, which is then easily

cleaned by careful handling under water. After obtaining the skeletons, the next step is to bleach them; this is done by placing them for a term, varying from an hour to a whole day, in a solution of chloride of lime, made by dissolving about 2 ozs. in a pint of water. Poppy-heads or Jamestown burs will bear double that strength; some delicate leaves, Hydrangea flowers, &c., will bleach advantageously with a still weaker solution. The preparation is to be removed from the bleaching liquid as soon as it is thoroughly and satisfactorily bleached; it is then to be washed, dried, and put away in a box, excluded from the light, till the collection is ready for mounting. This operation requires much skill and taste; a common way is to make a kind of pin-cushion into which the bleached stems of petioles, or covered wires glued to the base of the leaves and seed-vessels, are to be stuck; the whole may then be covered by a glass shade, which protects "the bouquet" from the dust, and renders it an exceedingly attractive household ornament.—(*Friends' Intelligencer*.)

WORK FOR THE WEEK.

KITCHEN GARDEN.

Cabbage, the main spring crop to be planted: the small dwarf sorts at 18 inches row from row and 15 inches in the row; the large sorts at 2 feet row from row and 20 inches in the row. A double quantity may be planted in the rows, so as to admit thinning out every other one in the spring. *Cauliflower*, prepare the ground for the plants which it is intended to protect with hand-glasses. The soil to be rich, and in a sheltered situation. Nine plants may be planted under a good-sized glass, and in the spring five or six of them may be taken up and planted elsewhere. *Celery*, the first earthing of a crop should not take place until it has made considerable progress. By commencing too early it is drawn up weakly. The earth to be closed round the stalks with the hand. *Cucumbers*, the heat of the beds containing bearing plants should not be allowed to decline, or they will not continue productive; whereas, by proper attention, they will produce fruit until Christmas. Dung to be procured and prepared for beds next month. *Endive*, tie up for blanching when the plants are quite dry. Another plantation may also be made. *Mushrooms*, the beds recently made to be spawned as soon as the heat has become moderate; when earthed, to be well beaten down, as solidity is one of the principal causes of productiveness. *Potatoes* to be taken up when the haulm is ripe, or they are likely to grow again if showery weather occurs, which greatly deteriorates their flavour.

FLOWER GARDEN.

The removal and transplanting of evergreen shrubs may now be commenced; whether planted in masses or singly, the ground to be well trenched and drained, and for single plants to thrive, the ground for some space round to be well worked up to facilitate the progress of the future roots, as well as the escape of water. When each tree or shrub is planted secure it from the action of high winds; mulch the surface to prevent evaporation from the soil, and besides occasional waterings at the roots when the earth becomes dry sprinkle the tops well each evening, wetting the bark and foliage completely. Carnation and Picotee layers which are sufficiently rooted may be taken off and potted. Plant offset Tulips, giving them a favourable situation and good soil. Should the Verbenas or other mass flowers show signs of exhaustion manure water will be found a useful stimulant. See that faded blossoms and seeds are regularly removed from beds, other blossoms will be thus encouraged; much of the vital energy of the plant is expended in the perfection of its seeds. As soon as the beds can be spared they should be prepared for the reception of bulbs. Use the present opportunity of effecting a complete clearance of weeds from walks and borders. Roll and mow grass, trim edgings, &c.

FRUIT GARDEN.

It is now time to think of making preparations for filling up vacancies on the walls with young trees, and perhaps in some cases judicious transplanting may be considered advisable. In either case the sites must be properly prepared with fresh maiden loam. If the borders have been properly constructed with regard to drainage and a porous bottom (and without which no good results can be expected to follow), but little preparation beyond removing a considerable portion of the old soil and supplying its place with new will be required.

STOVE.

Give abundance of air at every convenient opportunity, and assist the plants to complete their growth in a strong and healthy manner. Do not attempt to bring plants that are growing prematurely to rest, because of ripening the growth, but keep them steadily growing until they go gradually into a state of rest. *Ixoras* and many other stove plants may be made to make as much growth during the winter as in the summer. Sprinkle the walls twice or thrice daily, and dew the plants over occasionally with tepid water on bright days. Maintain a brisk temperature in the daytime, but allow the thermometer to fall to about 60° during the night.

GREENHOUSE AND CONSERVATORY.

The conservatory to be kept gay by a fresh introduction of plants in bloom, and the removal of such as begin to decay. It will, however, be advisable not to overcrowd the house at this season, as the permanent inmates will require to have all the light and air possible to ripen their wood. The climbing plants to be looked over frequently, shortening back the shoots going out of bloom, and training the remainder so as to assume a free, natural habit. The supply of water to the plants in the borders to be gradually decreased as the days shorten, and apportioning it with some difference, as the strong-rooting plants will require more than the others. A portion of the stock of *Chrysanthemums* to be placed under glass to forward them. Thin out the flower-buds, and water with liquid manure. When arranging *Pelargoniums* for the winter, allow them the lightest and warmest part of the house, to be kept close to the glass, and not allowed to touch each other.

PITS AND FRAMES.

The winter stock of bedding-out plants that are well established, should now be arranged and placed in their winter quarters. As frosty nights may be shortly expected, it is advisable to have the stock all housed and everything in readiness to afford protection when required. The plants to be placed near the glass, where they will have sunlight and air, which will impart to them a robust and stiff habit. In turf pits the distance from the straw coverings to be greater—from a foot to 18 inches, as there is then not so much danger to be apprehended from frost, as when placed higher in the pit. Where space is limited we have found that a select number of stout store plants well kept throughout the winter, are the best to propagate from in the spring, as early-rooted plants are decidedly better for this purpose than those which have been kept in pits throughout the winter.

W. KEANE.

TRADE LISTS RECEIVED.

Barr & Sugden's Autumnal Catalogue, 15, King Street, Covent Garden, is one of the best issued of Dutch, Cape-flowering Bulbs, &c. It gives well-selected lists, particularises those adapted for growing in masses, groups, &c., and adds much useful information.

TO CORRESPONDENTS.

*** We request that no one will write privately to the departmental writers of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely* to *The Editors of the "Journal of Horticulture, &c."* 162, Fleet Street, London, E.C.

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications.

We cannot reply privately to any communication unless under very special circumstances.

VINE LEAVES BLISTERED. (*A Subscriber, Dublin*).—The blistered appearance arises from excessive vigour in the Vines, accompanied, perhaps, by rather too much moisture in the air of the house. The parenchyma, or pulpy part, of the leaves increases faster than the spaces between the ribs of the leaves. The blistering will not injure the Vines.

PEACH TREES IN HOUSES (*H. C.*).—In the *Cottage Gardeners' Dictionary*, article "Peach," you will find all necessary directions. Assisting fertilisation by applying pollen by a camel's-hair pencil is desirable to all stone fruit grown under glass.

CHEMICAL MANURES (W. Adams).—As you cannot obtain the ammoniacal liquor from the gas works for your grass on light land, you had better apply superphosphate of lime and sulphate of ammonia. We cannot advise about the wall trees without more information. Cutting off branches of Peach, Nectarine, and Apricot trees 4 inches in circumference requires much discretion.

WORK ON ORCHIDS (W. C. P.).—The best is "The Orchid Growers' Manual," by T. Appleby, published at our office. There is no reliable separate work on the culture of stove plants.

SEEDLING GERANIUM (J. B., Frome).—We have a high opinion of your seedling Geranium, which is a Rose minimum, and of the Lucia rosea breed, with a horseshoe, and small bright rosy flowers: then if the habit will prove as you say, the plant is valuable, and would make an edging to Christina, and look like it at the same time. "The Doctor's Boy" sent us one very like it, which we lost before proving it, but we hope to be able to prove yours by striking the two pieces you sent, yet they will be just as safe as if they were in your own keeping, and you may have them back or have them destroyed when you will. Next time put out all your force to raise a good pink minimum, a good pink medium, and a good pink as strong as Punch. There is not a particle of pink in any of the Lucia rosea breed yet. Pinks, lilacs, mayes, and magentas, with sophora, and sophora colours, are the great desideratum of this age. Sophora colour being as yellow as the Allamanda petals.

CERASTIUM TOMENTOSUM AS AN ENGINE—PROPAGATING CINERARIA MARITIMA (Tyro).—Ceratium tomentosum should be left as it is till the middle of April, then to be taken up, parted at the roots into little bits, and then replanted, and to go on doing it the same way to the end of the chapter. Cineraria maritima is better, and ten times more easy to raise from seeds; and the severest frost will not hurt it if it sows itself, as has been proved this season in the rectory garden at Surbiton. Last autumn self-sown seeds there came up in spring.

GARDEN PLAN (County of Wicklow).—The plan and letter from the county Wicklow about the mixed border is under consideration. It will be some time before we can have it properly answered. When such things are done in a hurry they, generally, may be laid aside at one's leisure as of very little account.

FLOWER GARDEN ARRANGED FOR NEXT YEAR (S. B.).—Your plan is very good, and your arrangement of the colours for next year is exceedingly well done.

SEEDLING VERBENA (Bogner).—Your Verbena is the second instance we have seen of some common Verbena crossing Verbena venosa accidentally. Mr. Beaton stated, many years since, in these pages that he had a seedling from venosa by some strange pollen. The plant was just as wild-looking as yours is. It is not valuable as it is, but by anticipation it is worth much for raising a new race of Verbenas as hardy as couch grass, and as gay as the present colours are in the blood of your wilding. But who will take the necessary steps? Mr. Beaton has lost his Experimental Garden, and we do not know of any one to supply his place: therefore, we must reluctantly decline your offer of the plant.

TOMATOES.—Will some of your readers kindly enlighten me as to the best mode of preserving, pickling, or converting the above into sauce for winter use? I have this season grown both the red and the yellow varieties, the latter is very attractive to the eye, but very inferior in my opinion to the red in taste. I read recently that the yellow is used in China for dessert like Oranges, but I could not make it palatable with either sugar or salt. One of your correspondents this week asks why it is not used in this country in the green state as salad. Will he inform me how to prepare it, sliced with vinegar, oil, and pepper, like Cucumber?—W. X. W.

CLAY SOIL GARDEN (T. C.).—Do not use the Quince as a stock for your Pears, unless the soil is wet. We always graft on dwarf stocks both Pears and Apples, the trees are so much more manageable than standards. The Paradise stock is far better than the Crab for grafting Apples on. Plant three-year-old trees. For Apricots and Plums use the common Plum as the stock.

SOWING HERBACEOUS CALCEOLARIA AND CINERARIA SEEDS (W. H. F.).—It is full late for sowing Calceolaria seeds, those of Cineraria should be sown as soon as ripe. How can we tell where you can procure a garden plan without any information as to the size, form, or locality of the garden?

WINTERING OLD VERBENAS AND AGERATUMS (A New Cheshire Subscriber).—The old Ageratums will keep very well all the winter in your greenhouse, but unless the old Verbenas are now in pots, we think that you will not be able to get them to take to pots from the open ground, but there will be no harm in trying. They keep very easily if they take to the pots.

NAMES OF PLANTS (Subscriber).—1, Pteris tremula; 2, some Nephrodium or Goniopteris, we cannot tell which without fructification; 3, Asplenium flaccidum; 4, Pteris hastata macrophylla; 5 and 6, forms of Selaginella Martensii; 7, Selaginella uncinata, commonly called cuscia. (Z. S.).—Bilens tripartita. The plant is used to give a good red dye to woollen fabric, but we do not know that it has any value as fodder.

FLOWER SHOWS FOR 1861.

NOVEMBER 6th and 7th. ROYAL HORTICULTURAL SOCIETY. (Fruit and Chrysanthemums.) Garden Superintendent, C. Gyles.

NOVEMBER 12th and 13th. STOKE NEWINGTON CHRYSANTHEMUM SOCIETY. Sec., W. T. Howe.

NOVEMBER 14th and 15th. CRYSTAL PALACE. (Chrysanthemum Show.) Sec., W. Houghton.

N.B.—Secretaries of Societies intending to advertise in our columns will oblige us by sending an early intimation of their exhibition days.

POULTRY, BEE, and HOUSEHOLD CHRONICLE.

MORTALITY AT POULTRY SHOWS.

MUCH has been said of late about unfair practices with poultry at exhibitions, and it has been attempted to prove that such have occurred at recent shows. They would go far to injure a

pursuit which we like, and they would take from it a character which has made it a hobby with many of the most estimable members of society. We know not what is secure from the attacks of rogues, if they make up their minds to offend, nor can we point out any means of preventing misdeeds; but publicity will put persons on their guard to detect and prevent, and will cause offenders to be very cautious in their operations.

But it is worth while to ask what proof there has been that nefarious practices have been resorted to, or that birds have died from other than natural or purely accidental causes? It is difficult to get a thousand birds together without casualties; and though it may seem strange, yet it is not impossible, that these should even for two years in succession fall on the same party. It is worthy of remark, that accidents always happen to the best birds. If trickery is resorted to to hinder birds from winning, then, of course, it must be done in league either with the owner's servants, or those of the Committee of the Show.

In either of these cases detection may become certain and punishment should follow; but if it take place after the awards are made, it shows a wretched spirit of revenge, which may be, and we hope is, its own punishment, but which can hardly be found out. It is so easy in passing a pen to throw in a piece of food, and it is almost certain the fowls will eat it.

The competition in poultry is different from almost any other. The competitors are subject to no trial before they meet at the show; they are generally from different parts of the country, and it is impossible one exhibitor should know whose birds will tenant the pens adjoining his own. We believe few ever know till they possess a catalogue who are their opponents; they cannot then set to work poisoning till they see them, victorious, probably, over their own. But what then is their object? The death of the successful is no help to the defeated. It is more than probable, if they are put at a moderate price, that they will be sold, and the loss then would fall on the purchaser, the inconvenience on the Committee. The offender through success would not in any way be affected by it. If they were not sold, the glory and even the profit of the triumph would be little diminished by the death of the birds.

But there is a common-sense explanation. Your columns have contained many complaints during the last three months of inexplicable sickness and mortality among fowls. This, added to the moulting season and to unusual confinement, may surely account for the deaths of even more fowls than we have heard of. It is assuming far too much to suppose that all birds are sent in perfect condition to shows, and we know it has been matter of comment among some of our most experienced judges that there has been more appearance of sickness this year than for a long time. Indeed, it has been thought poultry was suffering from blight like some vegetables.—A SOUTH COUNTRYMAN.

POISONING FOWLS AT SHEFFIELD.

A GREAT mistake has been made by your correspondent in attributing the death and illness of the fowls at the Sheffield Exhibition to poisoning. I was within a few yards of Mr. Berwick's pen when it was opened, and the cock was then in a dying state. There is nothing extraordinary that a hen in Mr. Carter's gold-spangled pen should be ill; but, that the pen would have stood a chance of winning had the hen been well I cannot believe, as the male bird was in miserable condition and feather owing to frequent exhibition. It never ceased raining during the night previous to the Show, and no doubt many birds that are tenderly treated suffered. But are the Committee of the Sheffield Poultry Show responsible for the weather?

My birds have always been carefully attended to, and at their next exhibition I shall have no hesitation in entering such of my fowls as are fit for exhibition. I understand that Mr. Pallett, of Sheffield, whose birds were stated to be in miserable condition, has denied the statement. The Sheffield prize list is always first-class, and I wish them every success.—S. H. HYDE, Taunton Hall, Ashton-under-Lyne.

CAPTAIN HORNBY'S GAME FOWLS.

IF "F." was only actuated by a conscientious wish to see Mr. Thomas Challoner's fairness as a Judge established, he will be delighted to hear that all the inquiries I have made tend to establish his integrity, and to assure me that he has not ever

seen beforehand any of the Game fowls in Mr. Charles Challoner's care until they came before him as a Judge.

As, however, I think it very unfair to him to be exposed to such insinuations, and as it is very disagreeable to me to have my name brought into such a discussion, I have written to Mr. Charles Challoner to close the connection between us. I have resigned all claim to the use of any of the poultry in his care, and I have left him free to do anything he likes with them.

Any Game fowls I may in future show will have been walked at Knowsley under my own eye.

I may conclude by a cordial assent to your idea that at no poultry show ought there to be only one Judge; though, if such insinuations as have lately been made are to become common, the difficulty will be to find judges willing to expose themselves to such remarks.—W. W. HORNBY.

WOLVERHAMPTON POULTRY EXHIBITION.

MOST of those individuals well conversant with poultry shows anticipated a meeting of high character at Wolverhampton, a town which from its ready access by rail from every quarter is peculiarly available for the purposes of such exhibitions. It has, indeed, been a matter of general surprise that no previous poultry show has taken place at Wolverhampton. The one now just closed, however, proves beyond the possibility of doubt how strongly supported in this favoured locality an annual meeting of like nature would soon become. We cannot hesitate to record the fact, which is in all ways a most important one, that we can scarcely call to mind a visit paid to any exhibition of poultry where the character of the birds throughout was so well-deserving of our highest praise—in fact, every premium was closely contested.

It would truly be a remissness on our part not to speak in terms of the highest approval of all the arrangements; for the Honorary Secretaries, Messrs. Lamb and Morris, had evidently left nothing undone that could be done, both for the universal comfort of an extraordinarily large concourse of visitors assembled, and equally so for that of the poultry temporarily confided to their care—in fact, everything connected with the Show had been carefully considered, and afterwards carried out under their personal superintendence. The poultry were arranged under a very commodious tent in double rows back to back, and presented as a whole one of the prettiest and most orderly shows of the season.

The first class was for *Game* chickens of the present year, and a most excellent competition resulted; the Messrs. Stubbs, of Weston Hall, and Preston Hill, may well plume themselves on their success in taking all three of the Game prizes with Black-breasted Reds of great promise. The first-prize cockerel is quite the best bird in hand we have met with this season, and with proper care will prove no mean antagonist in the Single Game Cock classes of coming years. Several of the pullets in these prize pens were of especial beauty. In *Spanish*, though the class generally was a most promising one, Mr. Rodbard, of Aldwick Court, Bristol, took the precedence with ease. Messrs. Martin and Cargey had a close struggle for the second and third premiums; whilst a highly commended pen, exhibited by the last-named gentleman, proved but little inferior. Mr. Cargey stood out in full force in the next class with Silver Grey *Dorkings*—so much so, as to sweep off the entirety of the prizes. It is a high credit to any breeder to be enabled to exhibit together three so excellent pens as those alluded to: they were all shown in superior condition. The pride of the Show was the *Cochin* class—in fact, although every colour competed together, birds of the highest character of all the varieties were present. Very few of our readers who have seen them will feel surprised to find Mr. Tudman's Partridge birds taking the lead, pretty closely pushed, however, by a very excellent pen of Buffs, the cock especially so, the property of Mr. Henry Bates, of Harbourne Heath Cottage, Birmingham. We must not here omit a favourable mention of a four-and-a-half-months-old pen of White *Cochin* chickens, belonging to Mr. George Lamb, of Compton, Wolverhampton, which took the third prize. With age they will greatly improve; but even now they were shown in most creditable feather. Gold and Silver-spangled *Hamburghs* strove jointly for the awards. Here Mr. Leech, of Newcastle, took first with a capital pen of Silver, and second with a but little inferior pen of Golden-spangled, still continuing his success by taking the third also with a pen of the latter variety. In

Pencilled *Hamburghs* Mr. Martin, of Claines, Worcester, stood pre-eminent with a pen of almost faultless Silvers; the second prize being Golden, and the remaining one Silvers.

The *Turkeys* were first-rate, and the *Geese* particularly so. Here Mrs. Seamons, of Aylesbury, stood far in advance with a pen of Toulouse. The third prize were also of this breed, and the second were Embdens.

We now come to *Ducks* (any variety). In this class Mrs. Seamons again easily walked away with both the first and second prizes with Aylesburies of highest merit, and a pen of very good Rouens were consequently compelled to be content with the third only. We thought it a pity no class was offered for *Polands*, as of late these classes are far better filled than in times back, and we hope to find its introduction on future occasions. With all these disadvantages, however, the *Polands* were not permitted to remain unrepresented; the Duke of Sutherland sending as "extra stock" two pens, one of Golden and the other of Yellow Polish, both of which were so good as to elicit a unanimous high commendation from the Judges, and also an expression of regret no general class had been allotted them, as being undoubtedly one of the most striking varieties in any exhibition, combined with great capabilities as layers.

The Judges were Mr. Douglas, of Ranton Abbey, Staffordshire; Mr. Hewitt, of Sparkbrook, Birmingham; and Mr. George Lowe, of Ibstock, Leicestershire.

GAME (Chickens of 1861).—First and Second, J. Stubbs, Weston Hall (Black Red). Third, C. Stubbs, Preston Hill. Highly Commended, E. Archer, Malvern. Commended, G. Cargey, Sandon Farm, Stone (Black Red).

SPANISH.—First, J. R. Rodbard, Aldwick Court, Wrington, Bristol. Second, J. Martin, Mildenhall Mill, Claines, Worcester. Third, G. Cargey, Sandon Farm, Stone. Highly Commended, G. Cargey. Commended, F. Crook, Hampstead Road, London.

DORKINGS.—First, Second, and Third, G. Cargey, Sandon Farm, Stone (Silver Grey).

COCHIN-CHINA (any variety).—First, E. Tadman, Ash Grove, Whitchurch (Grouse or Partridge). Second, H. Bates, Harborne Heath Cottage, Edgbaston (Buff). Third, G. Lamb, Compton, Wolverhampton (White). Highly Commended, E. Tudman (Grouse or Partridge); H. Bates (Buff). Commended, E. Smith, Middleton, Manchester (Buff).

HAMBURGH (Golden or Silver-spangled).—First, Second, and Third, J. Leech, Newcastle (Silver and Gold). Highly Commended, G. Cargey. Commended, Countess of Dartmouth.

HAMBURGH (Golden or Silver-pencilled).—First, J. Martin, Mildenhall Mill, Claines, Worcester (Silver). Second, W. Tavernor, Little Aston, Stone (Golden). Third, J. Bates, Barton-on-Trent (Silver).

TURKEYS.—First, J. Coxon, Freeford (Cambridge). Second, Master E. Gay, Eaton, Grantham (Cambridge). Third, G. H. Perry, Tettenhall.

GEESSE.—First, Mrs. M. Seamons, Hartwell, Aylesbury (Toulouse). Second, Mrs. A. Baker, Grendon. Third, Rev. J. R. Blackiston, Settle, Yorkshire (Toulouse). Highly Commended, E. Mills, Shenstone (Greyling). Commended, E. Mills (Greyling).

DUCKS.—First and Second, Mrs. M. Seamons, Hartwell, Aylesbury (White Aylesbury). Third, G. Cargey, Sandon Farm, Stone (Rouen). Highly Commended, Mrs. A. Baker, Grendon; A. Morris, Peadeford (Rouen).

EXTRA POULTRY.—Highly Commended, the Duke of Sutherland, Trentham Hall (Golden Polish and Yellow Polish).

SPARKENHOE FARMERS' CLUB POULTRY SHOW.

THIS was held on the 11th inst. The Judge was Mr. Douglas, Ranton Abbey, Stafford; and the following were his awards:—

A Cup for three best pens to J. Choyce, Harris Bridge, near Atherstone. **SPANISH**.—First, Capt. Buckley, Desford. Second, J. Meredith, Atherstone.

DORKINGS (Coloured).—First, Mrs. E. S. Wolferstan, Tamworth. Second, W. Trussell, Ashby-de-la-Zouch.

DORKINGS (White).—First, Capt. Buckley, Desford. Second, J. M. Grundy.

COCHIN-CHINA (Coloured).—First and Second, J. Staley, Collingham, Newark. Highly Commended, Capt. Buckley, Desford.

COCHIN-CHINA (White).—First, J. Choyce, Harris Bridge. Second, Capt. Buckley, Desford. Highly Commended, Capt. Buckley.

BRAHMA POOTRAS.—First and Second, Capt. Buckley, Desford.

GAME (White, Piles, and Light Colours).—First, C. Lowe, Atherstone. Second, J. Cowlshaw, Ratby, Leicester. Highly Commended, The Marquis of Hastings.

GAME (Red, and other Dark Colours).—First, R. Lea, Hinckley. Second, G. Bott, Sheepy, Atherstone. Highly Commended, The Marquis of Hastings; M. Taverner, Upton, Nuneaton; Lady E. A. Hastings, Ashby-de-la-Zouch. Commended, W. T. Everard, Ashby-de-la-Zouch.

HAMBURGHs (Gold-spangled and Pencilled).—First, G. Woodcock, Hinckley. Second, Capt. Buckley, Desford.

HAMBURGHs (Silver-spangled and Pencilled).—First, Mrs. Wolferstan, Tamworth. Second, Capt. Buckley, Desford.

POLANDS.—First, J. Choyce, Harris Bridge. Second, Capt. Buckley, Desford.

ANY OTHER DISTINCT BREED.—First, J. Meredith, Atherstone (Indian Malays). Second, Captain Buckley, Desford (Sultans). Highly Commended, Captain Buckley (Sultans).

DUCKS (White Aylesbury).—First, H. E. Emberlin, Leicester. Second, J. Choyce, Harris Bridge.

DUCKS (Any other Variety).—First, Rev. B. G. Astley, Atherstone

(Black East Indian). Second, J. Choyce, Harris Bridge. Commended, Mrs. A. Baker, Atherstone (Rouen); R. Dummeller, Shackerstone Field.

GRESE.—First, — Winterton, Hinckley. Second, Baroness de Clifford, Hinckley. Highly Commended, Mrs. A. Baker, Atherstone. Commended, J. G. Ayre, Ashby-de-la-Zouch; Lady E. A. Hastings, Ashby-de-la-Zouch (Canadian).

TURKEYS.—First, W. Dawkins, Temple Mill, Congerstone. Second, Rev. W. R. Burgin, Ashby-de-la-Zouch.

GUINEA FOWLS.—First, R. Dummeller, Shackerstone Field. Second, — Winterton, Wolvey Villa, Hinckley. Commended, W. Harrison, Bagworth Park, Leicester.

BANTAMS.—First, Sir A. B. C. Dixie, Bart., Bosworth Park. Second, J. Choyce, Harris Bridge.

PIGEONS.—*Pouters or Croppers*.—Prize, H. E. Emberlin, Leicester. *Carriers*.—Prize, H. E. Emberlin, Leicester. *Tumblers*.—Prize, W. Choyce, Atherstone. *Fantails*.—Prize, W. Choyce, Atherstone. *Any other distinct Variety*.—Prize, Sir A. B. C. Dixie, Bart., Bosworth Park (White Jacobins).

RABBIT.—*For the heaviest Weight*.—Prize, W. Choyce, Atherstone. Commended, J. Meredith, Atherstone. *For the greatest length of Ear*.—Prize, W. Choyce, Sibson, Atherstone. *For the best of any other kind*.—Prize, W. Choyce, Atherstone.

FOWLS WITH FLESH TASTING OFFENSIVELY.

I HAVE been most successful in rearing a fine stock of Dorking chickens, most of which are now in high feather and good condition for the table; but when cooked are so offensive in taste and smell that it is impossible to eat them. I shall be glad if you could enlighten me as to the cause, and also point out a remedy. The smell resembles that of the dung of fowls in their house. I have nearly one hundred, and we cannot touch another.—AN OLD SUBSCRIBER.

[The smell and taste arise entirely from some improper food to which they have access. To prove it, give a fowl garlic or milt dust, and the eggs they lay will taste of it. Purge the fowls of which you complain, confine them for a fortnight, feed them on ground oats, and all the smell and taste will have disappeared. You must discover whence they get the offensive food. It may arise in a smaller degree from their being killed when full of food, which after death ferments in the body, and causes partial decomposition.

After having fed a fowl for a fortnight in the manner we have described, let it be fasted for twenty-four hours, then killed, and it will eat well.]

ANSWER TO AND PLEA FOR GAME FOWLS.

YOUR correspondent "HUMANITAS," in his letter upon the dubbing of Game cocks, seems unable to see the advantage of depriving the birds of their natural adornment. The reasons are very evident. First, To allow the smallness and neatness of the head to be seen, which, if the comb and wattles were left on, would not be so apparent. Second, To allow no hold to its adversary in battle, for though cock-fighting days are past it is well to prepare against the results of chance combats. The force with which Game cocks strike is well known; and when they can hold the comb of their foe, they are enabled to deal much more powerful strokes than otherwise.

"HUMANITAS" seems to consider the comb and wattles a great adornment to the bird, but many of our Game fowl breeders will, I am sure, not coincide in his opinion on this point. As to the cruelty of the operation, if done when young by a skilful operator, and a little powdered resin dusted upon the bleeding wound, very little danger or pain will accrue from the process.—GALLUS PUGNAX.

CURING A COCK OF HIS PUGNACITY.

CAN you tell me how to cure a fine Dorking cock of his savage propensities? There are plenty of hens and a good run for him, and yet he is so savage that it is impossible to go near him with comfort. He is very apiteful also to the hens generally. I feel unwilling to get rid of him, if there is any way of taming him as he is a fine bird.—A SUBSCRIBER.

[Like you, we should be very sorry to get rid of a savage cock, as such are generally the best birds. Their spitefulness increases with the fears of their owners. As soon as they find they are mastered, they become milder in their temper. We advise you to tie a long empty bag, or an old pillow-case to the end of a stick, and carry it when you approach him. If he attack, buffet him gently with it, and he will soon give over his

pugnacity. We have known a shepherd cure a dog of his propensity to run after sheep by tethering him to an old ram. The latter soon butted the breath out of the dog, and he never faced a sheep afterwards.]

DORKING COCK'S SPURS—MARK ON PULLET'S NECK.

IF you can spare me space in your answers to correspondents, be kind enough to settle my doubts on two points.

I have a fine young Dorking cockerel that I intended to show at Birmingham. He is a particularly fine bird, and promises to be very large and handsome; but there seems to be a peculiarity about the growth of the two back toes. Instead of their growing one curving upwards from the other as is usually the case, they grow at right angles with the shank, keeping together though quite separate. They are also of exactly the same length, instead of the upper one being longer than the under one. Would this peculiarity interfere with his success at a show? Would judges look upon it as a blemish?

2ndly. A very fine and handsome pullet had her neck slightly injured when a chicken through a hen having pecked her. The feathers (two or three only), have grown so as to show a mark, suggesting the idea that there is a scar. Would this spoil a pen in which she might be one of three?—REV. E. C.

[The peculiarity of the claws of the Dorking cock will not interfere with his success. It is no advantage, but it is far from a disqualification.

The absence of two or three feathers in the neck of a hen is immaterial; but with the most ordinary care no scar or appearance of one should have been a result.

It is no longer necessary to have three hens or pullets at Birmingham. Two only are required in competition.]

FOOD FOR DUCKLINGS AND YOUNG TURKEYS.

WILL you inform me the best food for young Ducks and Turkeys? I have been in the habit of feeding them with soaked bread, rice, and barleymeal mixed, but they do not appear to thrive. Last year I lost them nearly all from cramp and want of strengthening food, although regularly fed.—T. B.

[When ducklings are first hatched curd is the best food for them; but when they are of tolerable size ground oats mixed in water, with a little gravel in it, and whole corn for a change, are all they require if at liberty. If they are confined, they should have sods of growing grass put in their water.

Turkeys should now be large and old enough to be out of harms' way. The food on which they thrive best is oatmeal mixed with milk, with which the green of onions may be chopped fine and mixed. For young Turkeys, bruised peppercorns are good food. Rice is bad. Do not allow your young Turkeys to wander about the fields till the sun is up, and the dew is off the grass.]

THE ANY OTHER VARIETY AND TUMBLER CLASSES.

AT THE CRYSTAL PALACE EXHIBITION OF PIGEONS.

HAVING read the account of your reporter of the late Crystal Palace Poultry Show, and the refutation of the charge contained therein against the utility and possibility of taming and domesticating the Australian Wongo-Wongo Pigeon by the exhibitor, it appears that the point of the argument rests not in capability of domestication, but whether the class "Any other Variety" embraces all Pigeons (those captured and imported) as well as the varieties of domestic ones to which a separate class is not allotted?

Certainly to any unprejudiced observer it seems that wild Pigeons ought to be disqualified from competition in this class; if they are exhibited it ought to be in a special class adapted to foreign wild Pigeons which have been imported. A very good class might be made if they allowed foreign wild Pigeons and our native wild Doves and Pigeons to compete in one class.

There is, also, another objectionable point which the late Show has brought before public notice—the competition of Kite

Tumblers in the class with self colours. Self-coloured Tumblers must mean those of one uniform colour, whose feathers are not streaked with black. Surely a Kite-marked bird cannot fairly compete with reds, yellows, and blacks; some Kites appear to be almost uniform in colour, but these are not specimens which we ought to judge by of the variety.—AN EXHIBITOR.

WORMS IN THE EYES OF GEES.

WITH reference to the letter in your last issue from Sir John Macneil's land steward, respecting the insects found in the eyes of several of the Geese on Milntown Grange Farm, I think it an extraordinary and unaccountable phenomenon. I have one of the parasites still alive in water at my hospital in Aungier Street, where the curious may examine it.

It appears the eye affected first inflames, and the cornea or front of the eyeball loses its natural transparency and becomes white. By degrees the eye gets too large for the orbit or socket, and is projected outwards; evidently causing much pain to the animal. The disease only attacks one eye. Being in the vicinity of Milntown Grange the other day on other business, I called to see these animals, and operated upon two of them by splitting open the cornea with a pair of scissors and allowing the parasite to escape. In every case the insect comes away alive, and can be kept alive in water.

These Geese have access to a rivulet with clay bottom, that communicates with the river Fane; in which are abundance of the common ditch leech. Is it possible that the leech spawn swallowed by the animal could be thus generated, or how gets the parasite into the chamber of the eye?

On the subject of "Worm in the Eye of the Horse," the following short letter is published in "Percival's Lectures," 3rd vol., p. 235:—

"I have been favoured lately with some observations of the presence of these worms in horses' eyes, by W. Twining, Esq. (surgeon to the Commander-in-Chief), who has written on the subject in the 'Medical Society's Transactions,' at Calcutta, from which I will now give you an extract. He says, 'Sir E. Home mentions (in his Lectures on Comparative Anatomy), that the arteries of the ciliary processes in the horse are comparatively very large, and that Sir E. Home is led to believe that the two species of worms—the strongylus and filaria—found alive in the aqueous humours of that animal in India obtain access through these arteries, and this opinion is the more probable since similar worms are known to be occasionally present in the blood.'"

Mr. Twining adds, that several circumstances concur to render it probable that the ova of the filaria equi are received into the stomach with the food; and that these ova, taken up by the absorbents, flow with the blood into the various parts of the body favourable to the development of the worm, which having been accomplished, its further progress may be impeded by its augmented size. Sir A. Cooper's observations on worms found within the celiac artery of the ass may be considered corroboratory of all this, though it must be confessed the subject yet lacks elucidation.—M. SMALL, V.S., 22, Aungier Street, Dublin. —(Irish Farmer's Gazette.)

YOUNG BEES EXPELLED FROM HIVES.

I CANNOT quite concur in the reply given in THE JOURNAL OF HORTICULTURE, of the 10th of September, to the query of "A PERPLEXED YOUNG BEE-KEEPER." I do not think that the heat of the weather, or undue heat maintained internally by the bees, has anything to do with the cause of the imperfect development of the brood, or indirectly in any way with the expulsion of the young bees. We have had, if I mistake not, a summer of a lower average temperature than usual; and the last four weeks, though on the whole fine and dry, have not been at all remarkable for excessive heat—in fact, I should imagine them to have been below par in that respect.

But although I have thus expressed myself at issue with the reason assigned in the reply, yet I am not prepared to advance any other which is much more satisfactory to my own mind. The querist is, I think, himself nearer the truth in attributing the cause to the long continuance of uncongenial weather with which we were visited during July and part of August; but we might suppose, if such were the cause, that many more hives would suffer in the same manner.

I am inclined to doubt that all the young bees thus summarily disposed of are imperfectly developed. Bees quickly learn bad habits. If we leave refuse combs about with the view of their being cleaned by the bees, we soon transform a peaceable apiary into a nest of abandoned robbers. Thus, is it not possible that some imperfect bees were originally, and from time to time, cast out, and that the adults became indoctrinated with the spirit of slaughter? The wings which appear improperly formed may have become mutilated by the ruthless foes of these unfortunates. This is merely a suggestion, and not in any way advanced as a solution of the difficulty. Perhaps the "YOUNG BEE-KEEPER" would examine more closely the young bees as they first issue from the entrance, and try to ascertain if they are in any way imperfect.—S. B. FOX, *Esq.*

THE case of your correspondent "A PERPLEXED YOUNG BEE-KEEPER" although rare, is not altogether unknown; as about six years ago I had a hive from which the young bees fell to the ground on their first attempt at flight, to such an extent that the garden walks were covered with them, especially on a fine day occurring after a few days dull weather. This commenced early in the spring and continued until autumn (in spite of feeding, which did no good), when I killed them and found the hive well stored with good honey to the weight of about 20 lbs. This could not have been caused by want of fine weather, as the summer was a good one, and great quantities of pollen were carried in; nor could I discover the cause when I killed them; but I am inclined to think you have suggested the most probable cause—viz., a too warm situation, as mine were located under a high wall, aspect south, the hive a common one, well hatched. I must, however, say, I had another hive alongside it which did very well and showed no sign of the disease, and this seems to point to the queen as being diseased. Are the "two other hives" your correspondent speaks of, the swarms of the one most diseased? And are his hives exposed to the sun? If not, I would drive them and unite them to one of the best stored stocks.

The season in this neighbourhood has been a very bad one; very few hives have swarmed twice, and a great many not at all. Feeding will have to be generally resorted to, for which purpose I prefer a wooden trough cut out of the solid—say 8 inches long, 1½ inch deep, and 1½ inch wide, with wooden float; the hive to be raised on blocks if full of comb, if not, a larger entrance than usual to be cut for the purpose, and fitted with a block of wood having an aperture of less than usual size. I do not find the bees take the food from the top as well as the bottom.

I am glad to see your Renfrewshire correspondent enlightens your apiarian readers as to the effect of the vicinity of sugar refineries, and shall be glad to hear how the season has been with him and the "Pluvians" generally, and how his Ligurians have fared.—A NORTH-STAFFORDSHIRE BEE-KEEPER.

SUPERIORITY OF LIGURIAN BEES.

I REGRET that I am not able to furnish "X." with a table of the product of honey from the Ligurians and the black bees, although I do not fancy a table of this kind could be so framed as to be of any real value.

Perhaps the best test to which I can submit the Ligurians, is briefly to state what I have done with them during the past summer, and leave the apiarian readers of THE JOURNAL OF HORTICULTURE to draw their own conclusions with regard to their superiority over the common species.

Promising, therefore, that all my endeavours have been directed to the multiplication of stocks and queens, and that what honey I have taken has been, as it were, forced upon me, I may state that I commenced with ten weak stocks, nine of which were Ligurians, to which must be added one purchased swarm of common bees, making eleven in all. During the season these have been increased as follows:—

Queens and stocks disposed of	24
Remaining in the apiary	28
Total.....	52

When it is considered that some stocks and queens were parted with so early that little or no increase was obtained from them by me, and that as each left the apiary the capacity of reproduction in the latter was proportionately diminished, I think the Italians will be admitted to have done well in my

hands. I should also add that the incidental honey harvest has amounted to about 70 lbs.

Perhaps, however, the capabilities of the Ligurians may be best estimated by what has been done by my strongest stock, which I have multiplied to ten! in addition to taking from it a super containing 38 lbs. of beautiful honey!—A DEVONSHIRE BEE-KEEPER.

APIARIANS' EXHIBITION IN FRANCE.

THE Agricultural Society of France for the Encouragement of the Breeding of Bees, held a meeting last week at the Model Bee-hive, at the Luxembourg. About one hundred agriculturists attended from various parts of France. The exhibition of bees which was held in the orangery, was very interesting. The produce exhibited called forth expressions of admiration from the spectators. It showed how much progress has been made within a few years in one of the most lucrative industries of rural life. Several very important practical questions were discussed at the meeting. The country clergy were represented at the congress by five parish priests. One farmer in Champagne, instructed in this art by his parish priest, possesses at present 1000 bee-hives. The efforts of the Society have been attended with the best results. A superior degree of comfort has by its means been introduced into districts where it was hitherto unknown. The rearing of bees entails no additional house rent. It requires but a small capital, and but little labour. It is evident that much remains to be done, when we consider that while France produces 70,000,000*l.* worth of honey and wax, she expends 60,000,000*l.* in additional purchases. The Agricultural Society are of opinion that France might produce 200,000,000*l.* worth of honey and wax, and then export 70,000,000*l.* worth.—(*Paris Correspondent of the Times.*)

"B. & W.'s" APIARY IN 1861.

(Continued from page 452.)

My last communication, which appeared in your Journal of the 3rd instant, brought down the history of my apiary to the end of July; at which period my stocks, eight in number (more I care not to have) stood as follows:—

A. (Artificial swarm May 11. Old queen.)	B. (Artificial swarm May 23. Artificial queen, 1861.)	C. (Artificial swarm May 24. Old queen.)
D. (Old stock, artificial. Natural queen, 1861.)	E. (Old stock, artificial. Artificial queen, 1859.)	F. (Artificial swarm May 17. Old queen.)
These six hives were in my bee-house. The two others were located elsewhere.		
G. (Artificial swarm June 12, in Tasmanian-hive. Artificial queen, 1861.)	H. (Natural swarm June 14, in improved straw hive. Natural queen, 1860.)	

I have now to relate the story of a dynastic revolution effected this autumn, by which the first seven of these kingdoms have been convulsed and their queens deposed. Our friend the "DEVONSHIRE BEE-KEEPER" has to answer for the distress occasioned to these hapless populations by his ruthless patronage of the invading Ligurians,* *alias* Italian alp bees.

The first two armies of the invader were indeed successfully repulsed and destroyed, not one surviving to carry off the tale of their disaster. But on the 12th July there suddenly appeared a third Amazon leader, with her picked guards in russet and gold, which by a night surprise became masters of the citadel of D, and ultimately of the entire kingdom, the reigning queen having been early killed in the *mêlée*.

To speak in plain English, the substitution of the Italian for the English queen was this time effected most cautiously and successfully. My mode of proceeding was this: Preparatory to giving the Italians to this hive I removed the stock-box D, having the English queen in it, to a stand in a distant part of my garden. A super full of comb and bees, which happened to be over this box, was substituted in its place. The Italian queen with several of her own subjects, which had been transferred to a large wineglass, was then placed over a hole in the top of the super, with a piece of perforated zinc intervening.

* By the way, I hope this is the last occasion on which I shall write the word "Ligurian" as the title of these bees, it being an acknowledged misnomer.

They remained thus for fourteen or fifteen hours, during which time I occasionally withdrew the zinc slide and admitted some of the English bees, taking care not to irritate either party. They all fraternised amicably—not the slightest symptom of anger (and barely of suspicion) appearing in any of them, till, when the English bees outnumbered the Italians, the slide was finally removed. In a short time the queen and all descended, and everything proceeded as usual. I am not aware that a single worker Italian bee lost her life on this occasion. The English bees had been aware of their own loss.

Finding that I could look for no further addition to my number of pure Italians this year, I resolved to rear a number of artificial hybrid queens, and to substitute them for the several English queens in my apiary. If the modern theory be correct, and the drone-offspring of these hybrids will be pure Italians, I shall have no difficulty next year in supplying any quantity of pure-bred queens—*i.e.*, in the event of my solitary Italian queen surviving the winter.

In preparation for this breeding of hybrids, I had carefully examined every comb in the super before introducing the Italian queen, and had assured myself that it contained neither eggs nor brood of any kind. Finding, therefore, at the end of a week that many eggs had been laid in the combs, some of which were actually hatched, I determined to lose no time in commencing operations, especially as the number of drones in my apiary was beginning to decrease rapidly. My plan of proceeding was first of all to drive the whole population of D and A, with their respective queens, into empty boxes, which for several hours were located each in its own place till both hives were quieted, the stock-boxes of the two hives were then returned to the bees, only being made to exchange places. Thus, the Italian queen found herself mistress of a hive full of English brood in every stage of progress while occupying the same place in the apiary as before; and the bees of A, whose queen I had sought for and destroyed previous to giving them the Italian box (lately D's), were compelled to supply her loss by nurturing a hybrid queen.

On the 15th of July the "DEVONSHIRE BEE-KEEPER" paid me a visit, bringing with him a royal cell containing an Italian nymph, which he had kept as warm as possible in his hat. We made an artificial swarm out of E on the spot, by simply removing the stock-box, queen and all, to another stand in the garden, and putting a super in its place in the bee-house, which super happened (as in the former case) to be over the stock-box full of bees, with some few combs empty of brood. The royal nymph in her cell was adjusted in a glass containing some comb and set at once over an open hole at the top of the super. The bees crowded up directly and took possession of the glass, paying great attention to the young grub, covering her in in due time, so that I made sure all was right. However, on the 24th of July I found the royal cell demolished, in such a manner as satisfied me that the bees had torn out the body of the young queen, their instinct discovering to them that she was dead. A careful search among the bees confirmed my suspicions, no queen was to be seen. On the next day, therefore (the 25th), I took several combs out of A (late D's box) and examined them, four royal cells were found, but only one apparently tenanted; there may have been others which escaped my notice. The comb containing the tenanted cell was returned to A, the three others I cut out and put them in a glass with other comb over E. Besides the three royal cells there was some Italian brood not sealed in, all which were utterly neglected; nor did the bees of E seem disturbed, although certainly queenless.

Before I relate the further fortunes of this hive, I may mention that a young queen issued from her cell in A in due time; I saw her indistinctly on the 3rd of August, on which day there was a grand massacre of drones in this hive, some few, however, being happily spared: these bees have since done very well, having been subsequently transferred to a large box three-parts full of comb, where, as I fed them liberally, they have constructed fresh comb, and a good deal of pollen is now (Sept 11), being carried in. Here, at least I have succeeded in establishing a fertile Anglo-Italian hybrid.—B. & W.

(To be continued.)

CRINOLINE AND ITS CONSEQUENCES.—A correspondent vouches for the truth of the following story:—On Sunday last a young lady expansively dressed was in a garden within a hundred miles of the town of Bradford. She stooped to gather something, when her crinoline coquetted with a bee-hive that stood

close by. On attempting to walk forward, the mischievous article, unwilling to surrender its hold, pulled over the hive, and an angry troop of bees came buzzing about the alarmed and unhappy fair one. Clearly no time was to be lost, so, mustering up her courage, she rushed to a pond in the enclosure, and plunged overhead, to shield herself from her exasperated foes. As it was, however, the poor girl was very badly stung, and had to be removed to bed. It was expected that she would quite recover in a few days.—(*Preston Herald*.)

HEALTHY HOMES FOR DOMESTIC ANIMALS.

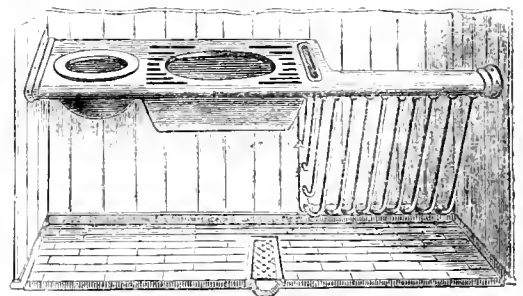
DR. JOHNSON has said that "Human life is everywhere a state in which much is to be endured and little to be enjoyed;" and certainly this remark can with much propriety be referred to our domestic animals; creatures which are more or less rendered subservient to the use of men, by whom they, in order to obtain from them the commodity for which they are kept, are placed under the operation of certain artificial states, and in many instances under circumstances most baneful to the animal economy, and consequently detrimental to the well-being of our stock.

We are well aware that a hunter must be artificially treated in order to fit him for the severe physical exertion he is forced to undergo during a run with hounds, and that a milch cow, especially the one located in our metropolitan dairy sheds, is converted into a machine for the production of milk; at the same time it is the duty of merciful man to consider well how he deals with the tender life of dumb creatures committed to his charge by an All-wise Providence; and this matter must be investigated on sound principles, and the conclusion arrived at must be based on deep scientific research and well-weighted practical observation. This consideration, therefore, involves the necessity of the reasoner being acquainted with the habits of animals, whether placed in a natural or an artificial state, and of his being versed in a knowledge of physiology and chemistry, appertaining to an elucidation of a hygienic system. The question may be put, What is to be understood by hygiene? Hygiene is a system by means of which we are able to indicate both for ourselves and animals, first, the best food to be taken for consumption, or that which is most calculated to promote health; and, secondly, to select habitations so situated and arranged as to insure perfect drainage and ventilation, or, in other words, those built on scientific principles, and with sufficient human foresight so as to procure health and consequent happiness.

By a due attention to these laws, "Life may be lengthened, though death cannot ultimately be defeated;" and in applying this remark to our domestic stock, we must consider where and how stables should be erected so as to insure perfect drainage and ventilation. Stalls in our opinion should not be less than 7 feet wide; the floors of which should decline, and that very slightly, from the side "partitions" to the centre, from which point the liquid runs away through a long underground gutter to the main drain. By effecting the immediate escape of liquid, it is easily understood that decomposition cannot go on within the stable, and, consequently, the presence of certain deleterious gases, such as ammonia, sulphuretted hydrogen, &c., is in a great measure prevented. We recommend a slight decline from the partitions and main wall in front, because we have noticed the ill effects, and in many instances disease, arising as the result of the floors of stalls being built on a decline from the main or wall in front to a surface gutter, which formerly existed, and sometimes even now is met with behind the horses' heels. In this stall so constructed, the inmate was obliged for hours together to stand uphill—i.e., with his forelegs in a more elevated position than his hind; and that this continued posture must be wearisome to horses, and we will add, injurious, can be seen by animals so located hanging back, as it is called—i.e., placing their hindlegs near the main surface gutter, so as to bring their forelegs on a plane surface, and place their bodies in an easy and at the same time natural posture. Any position if persisted in for any length of time becomes irksome and laborious; but ten times worse is it for the poor horse so situated, which has no alternative but to lie down and stand on an inclined plane—i.e., in a position calculated to produce contraction of the ligaments at the back part of the knee, and thus set up the disease known as over at knee. We are no advocates for stalling horses; without doubt it is our duty to consult the workings

of nature; and common sense indicates that loose boxes are to be preferred to stalls as habitations for our horses. In these locations our animals can range about and stand or lie down in almost any posture they like; their legs do not go, and life itself by these means could be rendered pleasant. But stalls or loose boxes if not ventilated—i.e., if they are not constructed so as to admit the ingress of pure air, and the egress of impure or spent gases, are likely to produce in horses diseases most fatal, such as glanders, farcy, ophthalmia, &c. These maladies were common some years back, but lately, owing to a better attention to the laws of hygiene, have become comparatively rare. Many systems of ventilation have been tried, but none have succeeded so well as Muir's Patent Four-points Ventilator, which consists of a cylindrical tube, divided into two parts by a mid partition, or diaphragm, so arranged as to allow the escape of the impure air on one side and ingress of pure air on the other. By this means a continued stream of fresh air is supplied, replacing the spent gases, or those unfit for respiration, and consequently injurious to health.

Having insured good drainage and ventilation for our stables, our task is only partly accomplished, since we must now select the best stable fittings. The days were when stable appointments were so ill-contrived and painful for the reflecting horseman to consider, that Messrs. Cottam & Hallen introduced and patented stable fittings, and so well constructed were they that throughout Great Britain they have been adopted with great success and profit to the patentee. Since this patent was invented several of greater or lesser value have appeared, all presenting, with a few trifling exceptions, the same features as the original invention of Messrs. Cottam & Hallen. Lately, the spirited firm of Messrs. Musgrave & Brothers, of Belfast, have introduced stable fittings—fittings carried out on the same plan as the original patent, but certainly improved upon and added to with success. These stable fittings consist of three open stalls and one loose box. In the loose box we object to the hayrack being in front and above the horse's head, instead of below it, as seen in the annexed illustration of Musgrave's new Patent Manger, which is fitted in the stalls. In this the opening at



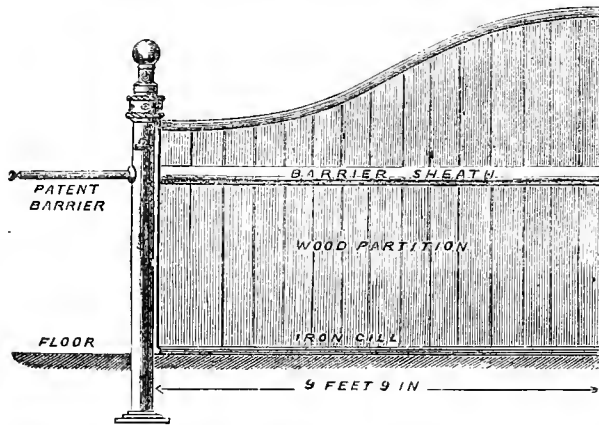
the top of the hayrack is made very large, and as there is no back rim, the horse is able to get his head freely down to the bottom. The manger or mash-tub has a footguard, which effectually prevents the horse throwing out his oats or mash, and yet lets his breath escape while feeding. The water-pot has no brass plug in the bottom, but turns upon a pivot, and discharges the unused water through a grating at the back, keeping the pot as clean as a china bowl, and the water always fresh. If oats happen to be in the pot they are retained while the water passes off. Any one who has used the common water-pot, with a brass chain and plug in the bottom, which frets the horse and soils the water with verdigris, will see in this, although so simple, a very great improvement.

The tying apparatus is a great improvement on the original patent. In Musgrave's the horse is not fastened to the manger, but the leather strap or chain (the former being the better) works through a long slit on the top plate, which allows it to play as freely as if no manger was before the horse.

Another improvement introduced by the Musgraves consists in a sliding guard in the form of a gridiron, which, by resting on the top of the hay in the rack, allows the horse only to remove a mouthful at a time, and by this means prevents waste.

The sliding bar for confining each horse in his own stall in the absence of the groom, on account of its use is a work of experience and foresight. The annexed diagram shows a stall division fitted with the patent safety barrier. In the centre of

the stall division is inserted a strong iron tube, marked "Barrier Sheath," and inside of this there is a sliding barrier, which passes out through the heel-post, with a knob on the end. The



servant as he leaves the stable pulls the barrier out of each stall, and fastens it to the opposite wall. This closes off the passage behind, so that if the horse should break loose at night, he is effectually confined to his own stall. In the morning, the barriers slide back again into their sheaths, where they are out of the way till next required. Two or more barriers can be fitted to each division, but one is generally found sufficient.

BIRDS:

THE DAMAGE DONE BY THEM, AND THE GOOD THEY DO.

"In medio tutissimus ibis."

MR. ABBEY is among the few gardeners who take a liberal and humane view on the subject of the mischief done by birds. He has said everything in their favour, and little against them. It is when birds become too numerous that damage is done.

In certain cold, dry springs, where Sparrows are numerous and caterpillars scarce, I have seen nearly the whole of the blossom-buds of the gooseberries destroyed by them, and the farmers allow them to build near their houses, but make a great fuss and try to scare them away when their wheat is ripening, and the birds get into flocks of a thousand strong.

Thrushes do little damage, as they live mostly on small worms and insects, but in a scorching June only they will take a very few strawberries and currants. The great cormorant of the fruit garden is the wary Blackbird. Surely Mr. Abbey will admit that where they are very numerous they help themselves most freely, and destroy immense quantities of strawberries. At the same time it must be allowed, that when breeding, little else except caterpillars, worms, and other insects, are carried to the nests for their young ones.

The French Government have been trying to encourage the breed of birds of all sorts, particularly Sparrows, Larks, and a few other sorts, which have been nearly extirpated in that country. The French have few birds excepting the migratory ones—Nightingales, Blackcaps (the *Fauvettes*), Wood Wrens, &c., and the people there have found out that for want of the natural birds of the country their crops are damaged by caterpillars and grubs of all sorts.

There being no law of primogeniture as to landed property in France, the land is so much divided in small portions and tracts, that it will require a very stringent enactment to compel the innumerable host of little landholders to abstain from destroying birds on their own estates. It is the same in the island of Jersey, where one hundred fowls may be seen with guns looking after a couple of Woodcocks in the winter, when these birds arrive on the island.

Rooks do a great deal of good to the farmer also; but they must not be suffered to increase too much. It is ridiculous to say that if these birds were left alone altogether that no mischief would be done by them, as alleged by some writers. They will destroy the seed crop of potatoes, wheat, or any corn whatsoever almost entirely, and I have seen them attack the apples and pears in orchards in Gloucestershire, particularly in

dry seasons, not to mention the walnuts, which they carry off in great quantities in October.

The poor Larks are quite harmless, and they are cruelly shot in great numbers to be eaten.

The winter of 1860-61 has made great havoc amongst the birds, and I can see a great diminution in their numbers, particularly in those of our sweet songster, the common Thrush (*Turdus musicus*). The Missel Thrush, also, has not been seen so frequently the last spring in this neighbourhood, and I miss his wild chant during storms.

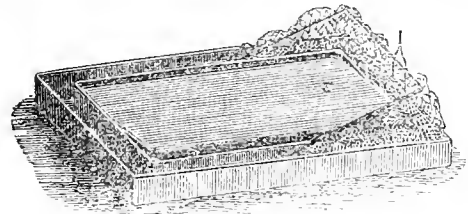
It would be almost impious to say that any living creature was not sent into the world by their Creator for some good purpose; but common experience tells us certain creatures must be lessened in numbers from time to time, the same as the common cattle which we live on.

On the whole, I highly commend Mr. Abbey for going out of the vulgar track of gardeners in general, some of whom grudge even the poor Robin a few currants, although this bird almost begs and waits for a worm, and enters our houses in severe winters to seek shelter from the cold. I have heard gardeners call him a little "robbing" bird.

Those migrating birds included in the category of "garden warblers," are in July great pilferers of strawberries, raspberries, and red currants; but no one ought to look on this but as a fair return for their beautiful song.—H. W. NEWMAN, *Hillside, Cheltenham*.

CULLINGFORD'S BIRD TRAP.

THE engraving illustrates a very ingeniously-constructed trap for the purpose of capturing birds, that has been issued by Mr. Cullingford. It consists of a central platform which sways freely from side to side, being supported on a pivot at each end. On this platform is placed the bait, consisting of grain or whatever material may be attractive to the bird which it is desired to capture. Around this platform is a deep groove to contain the



net, which is securely fastened down around one half of the trap, the remainder being attached to a wire forming three-fourths of a square; this is turned into a spiral spring where it is connected with the trap. The consequence of this arrangement is, that when the net is pulled back into the position shown in the cut, and then liberated, it is by the action of the spiral spring quickly thrown over the entire platform, securing any animal that may be upon it. When set for use the wire covering the net is forced back into the groove to the right hand, and secured by bringing over it the pointed wire which is shown in the erect position in the cut; the point of this wire is held down by the small catch shown on the platform.

It is obvious that the movements of any bird or other animal on the platform must of necessity cause it to sway to one side or the other; and the result is, that the pointed wire being liberated from the catch permits the spring and wire to pull the net over the platform and secure the bird.

STOCK OF CANARIES—FOOD FOR YOUNG ONES.

THE size of the aviary is 3 feet by 4 feet; height 9. I propose to begin with six green hen Canaries, and two golden yellow cocks: may they be placed together now, and allowed to bring off their young as frequently and as early as they please? for, in my breeding-cage, a hen Canary has laid sixteen eggs; forsaking her young at the end of a fortnight, to the injury of her elder brood. Would it answer to put in a cock Goldfinch to get used to the Canaries, and place him in a breeding-cage with a suitable hen early in the spring?

Any suggestion to save the quantity of eggs consumed by the young birds would be most acceptable, as the older birds most freely partake of the food provided for the nestlings.

[I consider it would be better to put one cock and four hens in the proposed aviary than two cocks and six hens in so small a space; and as the season is so far advanced, it would be better not to put the cock in until the spring, but a Goldfinch would do no injury at present.]

I know of no better food for the old to feed their young on than hard-boiled egg, bread, and maw-seed, with plenty of fresh green meat.—B. P. BRENT.]

THE JAPANESE OR AILANTHUS SILKWORM.

THIS species, which M. Guerin Meneville has naturalised in central France, is reared in the open air, and its food—the leaf of the Japan varnish tree—prosperes in the poorest soils capable of producing no grains, vines, or grapes for pasture. This worm demands very little care; it is exposed with impunity to violent storms, has not been affected by the epidemic disease so fatal to the silk culture in Southern Europe, and may be destined to furnish for western countries, as it has for many centuries in China, the silk of the people. At the château de Legnottier, the residence of M. Aiguillon, a distinguished agriculturist of Toulon, a part of these worms were raised in a close cabinet, another set in a greenhouse well aired both day and night, and a third division in the open air upon hurdles left out of doors, and on trees merely covered with a netting for protection against birds.

At the château de Coudray-Montpensier, also, Count Lamotte-Barace has had these silkworms reared in the open air on magnificent clumps of the Japanese varnish tree 12 feet to 16 feet high. The cocoons obtained from those kept exposed to all weathers are larger and richer in silk than from those which have been protected or confined; and at Toulon, as at Coudray, the worms have undergone several violent storms, with beating rains and furious gusts, without appearing to suffer in any way. At Coudray, after a hurricane, July 20 and 21, 1859, which broke or tore up many trees, and carried away the suspension bridge of Langeais, over the Loire, they were found next morning with the rain flowing over them, eating and weaving their cocoons on the trees where they had maintained themselves safely.—(*Prairie Farmer*.)

WASPS.

CONTRARY to the established ideas on such matters that these destructive insects only visited us in large numbers when Plums were plentiful, they are certainly this year as numerous as any season I ever knew, and as luscious, juicy fruits are not forthcoming, they have attacked apples and pears—not ripe, mellow ones only, but hard and dry fruit of any kind that is to be had. Tomatoes they also attack, which is an unusual event, and I expect those having bees must keep a sharp look out, or their enemy, the wasp, will wage a destructive war with the industrious denizens of the hive. Destroying the nests by all known means is all that can be done now, and baits or traps for catching the wasps must also be put in requisition. One of the best of small hanging-traps is of glass, the top having a sort of funnel tube running downwards like the neck of some ink bottles that prevent the ink spilling when the bottle is turned on its side or upside down. These wasp traps have a cork-hole in the bottom to take out the dead wasps and liquid, which frequently requires emptying. It is astonishing what numbers are taken in a day.

Wasp nests in the ground are destroyed by home-made fuses, which are made by folding a little brown paper tightly round a stick as thick as the little finger, and then withdrawing the stick and stopping up one end. The tube is filled with a mixture of one part gunpowder and three or four parts of saltpetre, and brimstone pounded fine. The whole being put in dry, the fuse being lighted at one end, and put into the hole will burn quite half a minute, searching out every cell, and for a time stupefying the wasps sufficiently long to enable them to be dug out and the nest destroyed. There are other methods of dealing with them as well as the above. Turpentine poured into the hole is said to stifle them, and a piece of tow or soft rag steeped in this liquid and put into the hole will effectually prevent their using it again; but if the ground is loose and open they

will sometimes work their way out in another direction. That after all it is best, where practicable, to dig out and crush up to mummy every particle of the nest and its contents. Hot water will kill them when it can be poured in with any chance of coming in contact with them; but this is not always the case, their burrows sometimes taking an upward turn which the water does not follow, so that after trying various plans I have found the above to be the best that I know of; but those having had long experience in the matter generally become accustomed to one particular way, which, doubtless, in their individual case may be the best. At all events, war must be waged with the enemy, both now and again next May, when every wasp becomes a nest.—J. ROBINSON.

RHUBARB WINE.

A SHORT time ago I saw a letter in your Journal from a correspondent, who, writing upon the above subject, complains that among all the suggestions about bruising or not bruising, &c., what was wanted for him and many others was a "good receipt for making rhubarb wine."

Taking an interest in the making of the wine for my own consumption, I have taken up my pen to give your correspondent, and others who may feel interested in the subject, the following receipt.

First of all I must beg your acceptance of a sample bottle which I here enclose, that you may judge for yourself whether the quality is such as you can recommend; and if you approve of it to transfer the receipt to your columns. The wine from which the enclosed bottle was taken was made in August 1860.

On the 18th of that month 22 lbs. of rhubarb stalk were cut small and bruised, and 2½ gallons of water added, and stirred every day for a week, then strained and three-quarters of a gallon more water added to the fruit, and left to stand two days, then well squeezed in a lever press. Fourteen pounds of best raw Jamaica sugar were then added to the juice, and fermentation began the next day. On the 1st of September it was put into a four-and-a-half-gallon cask, leaving about half a gallon to fill up with as the yeast worked out at the bung-hole, and on the 1st of November the bung was laid lightly on, and on January 1, 1861, the wine was racked off and the cask rinsed with some of the wine, after which it was again put in the cask, and a bottle of Butt's patent brandy added as well as three pennyworth of burnt sugar for colouring; then closely bunged down, and bottled the 12th of last month, producing two dozen of good wine.

I need hardly say all the vessels, &c., used, should be perfectly sweet and clean.

The cost will be somewhere about 7½d. a bottle to those who grow their own rhubarb.—JAMES ALLEN, *Austin Street, Lynn, Norfolk*.

[Without any exception this is one of the best samples of homemade wines we ever tasted. We can even go further, and say truly that it is equal to some of the best of the luscious foreign wines. A little more age will make it still more superior. If any of our readers are successful in making superior malt and parsnip wines, we should be glad of samples and the recipes for making the wines.]

OUR LETTER BOX.

CROSS-BREDS FOR EATING (*J. Forbes*).—In your northern climate we recommend Cochon-China pullets and a Dorking cock. You will have fowls as good for table as if you had Spanish pullets, the chickens will be larger and harder, and you will have eggs in winter.

DUBBING GAME COCKERELS (*F. Bailey*).—Dubbing is imperative if you hope to gain a prize. The judges would pass over the pen if the cockerel were not dubbed.

SPANGLED HAMBURG COCK'S TAIL (*A Subscriber, Glasgow*).—His tail ought to be erect and arched. Your cockerel's tail drooping very much arises either from an injury, or deformity of the spine.

LONDON MARKETS.—SEPTEMBER 23.

POULTRY.

Though the supply of poultry is very small, it is quite equal to the demand. Grouse and Partridge sell well.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls	3 6	to 4 0	Grouse	2 0	to 3 0
Smaller Fowls	2 6	„ 3 0	Partridges	1 0	„ 1 9
Chickens	1 9	„ 2 0	Pigeons	0 8	„ 0 9
Ducks	2 0	„ 2 6	Rabbits	1 4	„ 1 5
Geese	5 0	„ 5 6	Wild	0 9	„ 0 10

